



MANAGING DRUG SUPPLY FOR HEALTH INSTITUTIONS



PROVINCE OF THE EASTERN CAPE
DEPARTMENT OF HEALTH





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ACRONYMS

AVG	average monthly consumption
EDL	essential drug list
ENT	Ear, Nose & Throat
FEFO	First Expired First Out
FIFO	First In First Out
IV	intravenous fluids
NSN	National Stock Number
PVC	polyvinyl chloride
STG	Standard Treatment Guidelines
VEN	VEN classification
	V - vital items; E - essential items; N - non-essential items
WHO	World Health Organisation



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The Health Department of the Province of the Eastern Cape, particularly Ms. Mandisa Hela, Deputy Director for Pharmaceutical Services, should be thanked for her support during the development of this manual.

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PREAMBLE

One of the cornerstones of the Constitution of the Republic of South Africa is the Bill of Rights which specifies the rights that should be enjoyed by all South African Citizens. Among these is the right to access to health care services.

The National Health Policy is one of the vehicles used by the Department of Health to realise the imperatives of the Constitution. It is guided, amongst others, by two important principles:

- A commitment to improving the health status of the South African population
- A commitment to achieving equitable access to Primary Health Care Services

The National Drug Policy within the framework of the National Health Policy aims to improve access to health services through ensuring the availability of appropriate drugs whenever and wherever they are needed and in the most cost-effective manner. The main objective of the Essential Drugs Programme, a subset of the National Drug Policy, is to achieve access and equity through effective management of the selection, procurement, distribution and use of drugs.

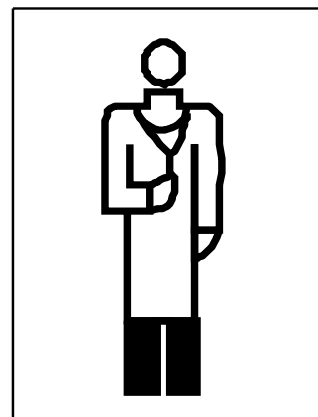
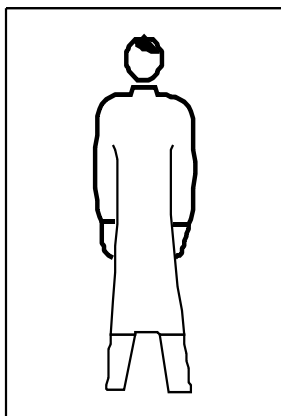
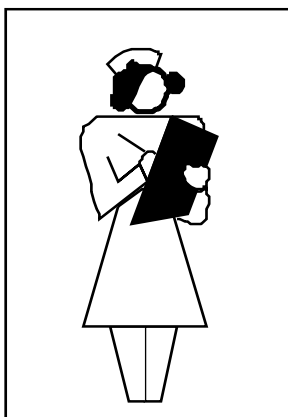
Effective pharmaceutical procurement and distribution processes are central to the availability of drug supplies.

Effective pharmaceutical procurement practices include the formulation of a national/provincial essential drugs list (EDL), the determination of order quantities based on reliable needs estimation, the separation of key functions, prompt payment and regular audits.

Effective distribution management includes the availability of an efficient network of storage facilities, keeping reliable records of drugs stock balance and consumption, maintaining accountability procedures, ensuring adequate and secured storage conditions, reliable transport systems and reinforcing reporting and supervision practices.



WHO SHOULD READ THIS MANUAL



This manual is addressed to all health workers who are in one way or another involved in the management of the procurement, storage and distribution of pharmaceutical products and medical supplies at the health facility level (hospital, health centre, clinic).

The procedures described in this manual have been fully tested for many years in different environments. They work. But they will only work if applied fully and systematically. Inventory management is not something that can be done sometimes. It works only if records are maintained accurately and in a timely fashion. The long-term benefits of implementing such a system outweigh the efforts needed for its maintenance.

The main objective of inventory control is to be able to supply the right quality product to the patient at the right time and in the right quantity. This is the only way one can ensure people's confidence in the health system and to provide adequate quality of care.



THE MANUAL CONTENTS AND HOW TO USE IT

This manual is organised in logical order, that is, according to the steps that need to be followed to ensure the proper implementation and use of the stock card system.

After an overview of the storage area organisation and maintenance, the manual provides detailed information on how to start to use the stock cards and how to maintain them. This section is followed by the description of recommended procedures for ordering. After that, ordering methods are discussed and all the formulas provided are explained. The next section focusses on the issues of budget management and monitoring. Good dispensing practices are then described. The last section deals with an important issue which is very often unclear to clinic staff: how to dispose of expired, damaged or obsolete products.

If stock cards are already implemented in a health facility, the reader might be tempted to “jump” to a particular section of this manual. It is, however, recommended that one read through this manual, at least once, to ensure that all the concepts introduced are understood.

Whenever appropriate, and particularly in the reordering section, numerous example are provided. The users are encouraged to use the figures from their own situation to practice.

Throughout this guide, “user friendly” supervisory checklists are provided. They should be used by health facility supervisors or clinic staff to conduct regular checks. These are all listed at the end of the document. All formulas and forms are also listed at the end of this document for quick reference.



DEFINITIONS OF TERMS

The following definitions are extracted from the "Provisioning Administration I - Procedures Manual" and conform to the Treasury Instruction N1.

Accounting	The recording of all receipts and issues, and the continued recording thereof as approved by the Treasury.
Bin Card	See Stock Card.
Issue	The physical act of handing over stores, on submission of a requisition (demand) which has been signed by an authorised person.
Issue Voucher	A treasury-approved voucher on which all issues are recorded.
Depot	A centralised storage location for the issue of stores to decentralised warehouses (Demanders).
Disposal	The process of decision making regarding the doing away with, or the cannibalising of, an item which is no longer needed in Government context, and which is administered in terms of the disposal policy.
E-Class Accounting	Accounting in respect of those stocks approved by the Treasury as consumable, on an approved record (tally card) until they are issued, in order to implement meaningful replenishment and stock keeping of an item.
Receipts	All Stores received, irrespective of the means by which they are purchased, transferred, produced, manufactured, donated or acquired.
Receipt Voucher	A treasury-approved voucher which is completed to record receipts.



Stock Card	A Treasury-approved form on which all transactions with regard to E-Class accountable stores and services are recorded.
Stores	All movable State property which is kept in stock for issuing.
Surplus	Stores items in respect of which the quantity of a particular item which has been physically counted during stocktaking, exceeds the quantity of that particular item as reflected in the ledger/tally card/inventory.
Tally Card	See Stock Card.

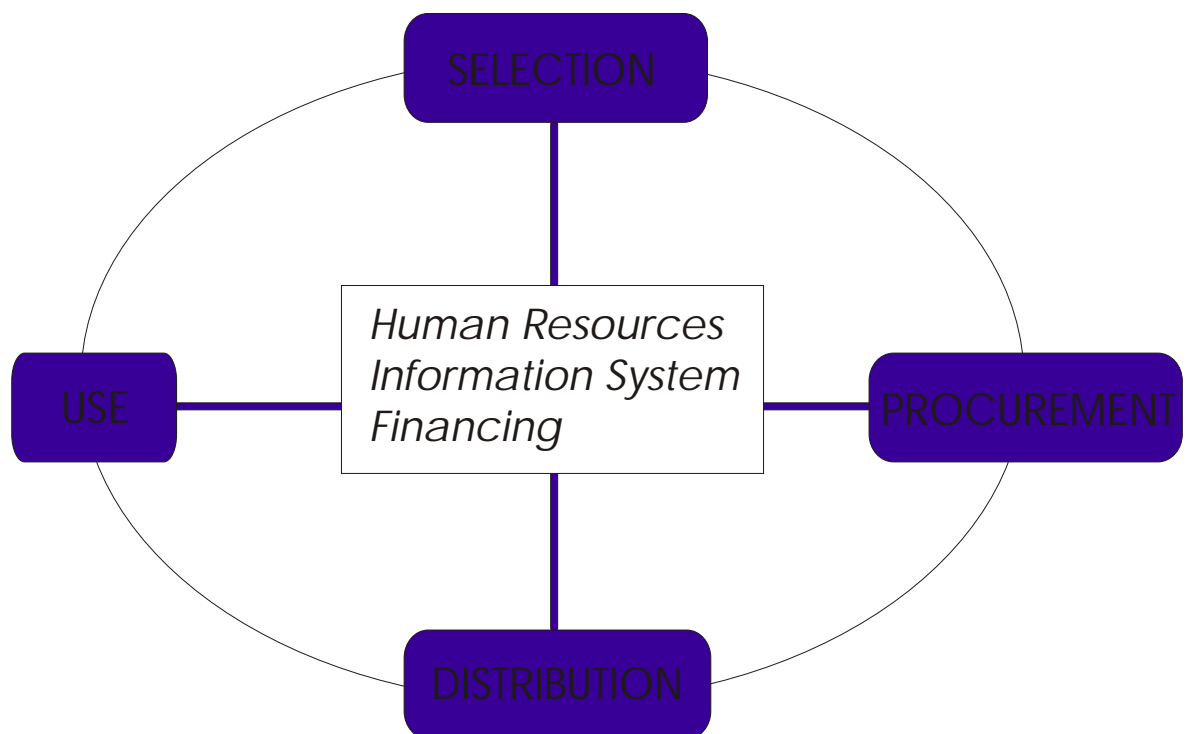
Note:

According to these definitions Stock Card, Tally Card or Bin Card are identical. To facilitate reading, Stock Card will be used throughout this manual.





THE DRUG SUPPLY MANAGEMENT CYCLE





THE DRUG SUPPLY MANAGEMENT CYCLE

Effective inventory control enables the dispensing officer to provide the right drug to the patient at the right time, in the right quantity. Stock cards are the inventory management tool used to monitor stock level and drug consumption. By monitoring the rate of drug consumption, the requisitioning officer can forecast future drug requirements with accuracy.

Any improvement made on inventory management at the facility level has a direct beneficial impact on the whole supply system. By the same token, poor inventory control at the peripheral level can jeopardise all the efforts made at the central level in several ways:

- if too much is ordered, it will result in overstocked drugs which may expire before they are used.
- if too little is ordered, essential drugs might not be available when needed.

In a centralised procurement system like the one used in South Africa the quantities tendered are based on past consumption data; that is, the quantity issued to the various "clients" (Health Centres, Hospitals, etc.). If the quantities issued to these demanders do not reflect the real demand, chances are that the estimates transmitted to the central level will be wrong. This can cause several problems:

- Purchases by the procurement agency of items which are on contract (the majority of them) will not be sufficient (or too much) to cover the needs.
- If the drugs are not available when needed the patients will lose confidence in the health system.
- Better prices can be obtained when quantities tendered are more accurate.



If the procurement agency purchases less than what was tendered for because of poor estimating methods, the suppliers will also lose confidence in that procurement system and will stop providing them with their best price or will not even be interested in conducting business with the procurement agency. According to the contract terms, a penalty will be charged to the purchasing agency when quantities purchased are below or above 20% of the quantities contracted.

Drug supply management is a critical part of the health system. The amount spent on the procurement of drugs and medical supplies is the second largest expenditure after the one associated with salaries.

The Drug Supply Management cycle includes:

- Selection: Once prioritised health problems are identified, essential drugs that should be used to treat them are selected and Standard Treatment Guidelines (STG) defined.
- Procurement: The process of ordering good quality and cost-effective essential products from reliable suppliers.
- Distribution: Once received, essential drugs and other essential medical supplies are stored and made available to the users through a reliable delivery network on a regular basis.
- Use: At the facility level drugs are prescribed to the patient according to predefined standard treatment guidelines and then dispensed.
- Human Resources, Information System and Financing: These three components are described as support systems. They are key systems in supporting the management of personnel, the transformation of data into information and the allocation and monitoring of funds.

Directly or indirectly everyone involved in any health system has something to contribute towards the improvement of the management of drugs and medical supplies. This can be achieved, however, only if all the parties involved play their part and work together towards the improvement of the supply system.





CHECKING YOUR STORAGE AREA





DRUGS AND MEDICAL SUPPLIES STORAGE AREA

Before starting to use the Stock Card system it is important to ensure that the storage area is clean, properly arranged and secured.

Ideally drugs and supplies should be stored in a separate storage area secured by a lock, or a locked cupboard in small facilities. Keys must be handled only by the person on duty responsible for managing the store supplies.

The temperature must also be controlled (if needed, an air conditioner or ceiling fan should be installed) and the area well ventilated but not exposed to dust. One rule of thumb is that if you feel too hot when in the storeroom, chances are that the products are also exposed to high temperatures.



Moisture can also cause a lot of damage to your supplies. Therefore, you must ensure that there is proper drainage and that no goods are stored on the floor.

Boxes and goods should never be in direct contact with the floor. They must be placed on pallets.

Many products, particularly injectable forms are sensitive to direct light. Keep the vials in their box and if need be hang curtains on the windows.



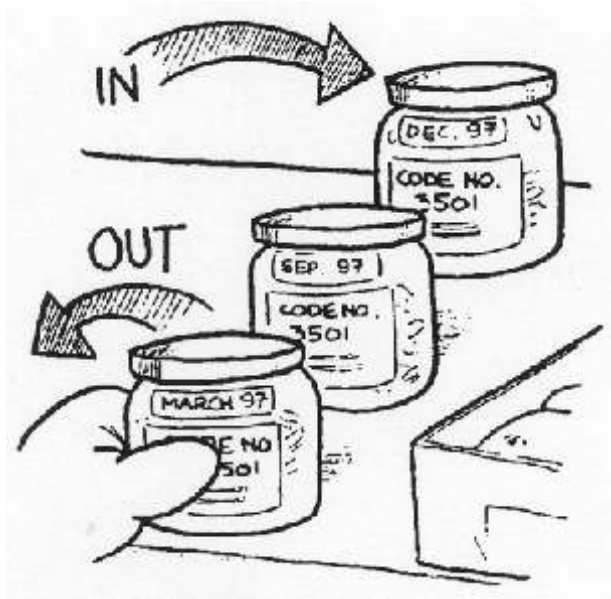
HOW TO ORGANISE THE SUPPLIES IN THE STORAGE AREA

Regardless of the type of storage (storeroom, shelves, a cupboard), the products must be arranged according to a particular order. There are several ways of classifying pharmaceutical products and medical supplies. The two most common classifications are:

- by Dosage Forms: Similar dosage forms are stored together (e.g. Tablets, Injectables, Oral Liquids, Ointments, etc.). Products are sorted alphabetically within each category. This method is simple to apply and maintain. It does not require much medical knowledge and it also allows the optimal use of the storage space as packages of similar size are together.
- by Therapeutic Categories (e.g. EDL Classification): Products which share the same therapeutic properties are stored together. All Antibiotics are stored together, all Anti-Hypertensive drugs are stored together, etc. Products are then sorted alphabetically within each category. This method is more complex to maintain as the staff responsible for the organisation of the storeroom needs to know the therapeutic class of each product. Some products can also share two or more categories, therefore, if this method is chosen, one has to ensure that everyone agrees on a particular class for each product.



Once a classification method is chosen, items with an expiry date have to be stored using the FEFO method (First Expired First Out). Items with a shorter expiry date should be stored in front of those with a longer expiry date.



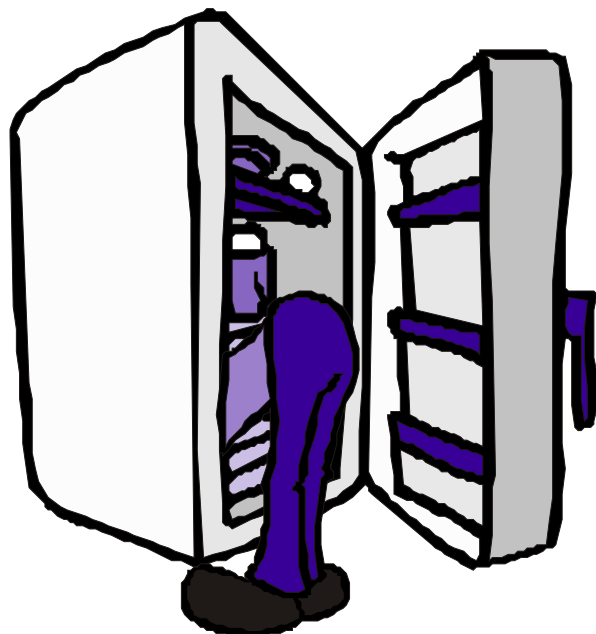
If the products do not have any expiry date, the FIFO method should be used (First In First Out). Items newly received should be stored behind the ones already on the shelves.

Expired drugs, damaged and obsolete items should be removed from the shelves and disposed of according to the approved procedures.

The store should be kept free of any kind of pests. Any spilled products should be removed immediately and the spillage area should be cleaned.

The fridge(s) should be used exclusively for the storage of medical products that need cold storage, not to store the staff food. The temperature should be recorded daily in a log book or on a card.

Specific guidelines on cold chain management are available in the Department of Health publication: "Cold Chain and Immunisation - Operations Manual - Guidelines for vaccine handling at all levels, August 1997".



All products must be stored in a secure, clean and well ventilated area. A well organised and secure store makes the job easier.



INFRASTRUCTURE CONDITIONS CHECKLIST

How does your store match up to the ideal store? Put a check mark (☑) in the corresponding box when the statement is TRUE. Perform this self-assessment and share the results with your health team and/or your supervisor.

Note:

If in your situation point one is not verified, look at the location where drugs are kept and dispensed.

No	Description	
1.	The store is separate from the dispensary.	
2.	Drugs are not dispensed to patients from the store.	
3.	The store is large enough to keep all supplies.	
4.	The door to the store has two locks and each lock has a separate key.	
5.	The store is kept locked at all times when not in use.	
6.	There are no cracks, holes or sign of water damage in the store.	
7.	There is a ceiling in the store which is in good condition.	
8.	Air moves freely in the store; fans and screens are in good condition.	
9.	The windows are painted white or have curtains and are secured with grills.	
10.	The store is free of pests (i.e. cockroaches, rats) ; there are no signs of pest infestations.	
11.	The store is tidy; shelves are dusted, the floor is swept, and walls are clean.	
12.	Supplies are stored neatly on shelves or in boxes.	
13.	Shelves and boxes are raised off the floor, on pallets or on boards and bricks.	
14.	The refrigerator is in working condition.	
15.	There is no staff food in the refrigerator.	
16.	A temperature record is available and up-to-date.	
17.	Narcotics and psychotropic drugs are in a separate double-locked storage space.	

Once your assessment is completed, you must identify what can be done immediately to solve most issues; share the results with the health team and/or your supervisor and make a plan for long term improvements.



STORAGE PROCEDURES CHECKLIST

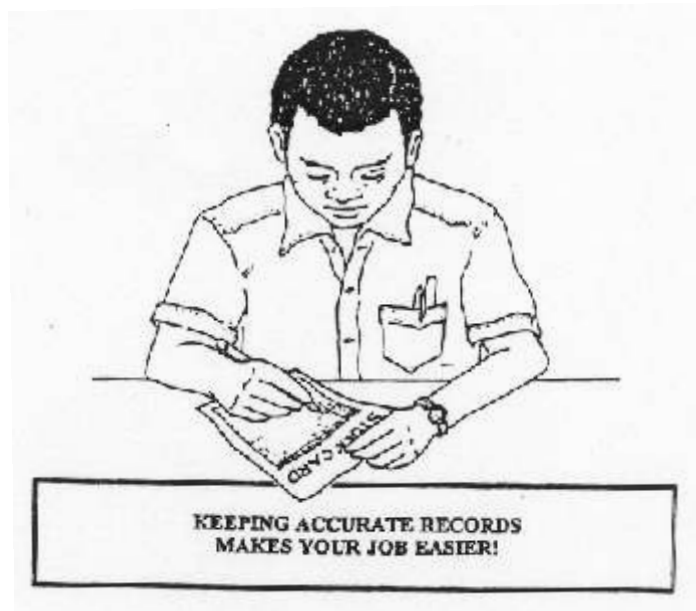
How well organised is your store? Put a check mark (☑) in the corresponding box when the statement is TRUE. Perform this self-assessment and share the results with your health team and/or your supervisor.

No	Description	<input type="checkbox"/>
1.	Supplies are classified on the shelves: by forms or therapeutic class.	<input type="checkbox"/>
2.	Tablets and other dry medicines (eg. ORS) are stored in airtight containers.	<input type="checkbox"/>
3.	Liquids, ointments and injectables are stored on the middle shelves.	<input type="checkbox"/>
4.	Supplies, like surgical items, condoms and bandages are stored on the bottom shelves.	<input type="checkbox"/>
5.	Temperature-sensitive items are stored in a refrigerator.	<input type="checkbox"/>
6.	Supplies are arranged on the shelves in alphabetical order by generic name.	<input type="checkbox"/>
7.	Items are grouped in amounts that are easy to count.	<input type="checkbox"/>
8.	There are no expired drugs in the store.	<input type="checkbox"/>
9.	Drugs with shorter expiry dates are placed in front of those with later expiry dates.	<input type="checkbox"/>
10.	Supplies with no expiry or manufacture date are stored in the order received (FEFO).	<input type="checkbox"/>
11.	Supplies with a manufacture date only are stored in chronological order (FIFO).	<input type="checkbox"/>
12.	There are no damaged containers or packages on the shelves.	<input type="checkbox"/>
13.	There are no overstocked, or obsolete items on the shelves.	<input type="checkbox"/>
14.	The disposal of drugs is recorded and includes the date, time, witness and reason(s).	<input type="checkbox"/>

Once your assessment is completed, you must identify what can be done immediately to solve most issues; share the results with the health team and/or your supervisor and make a plan for other long term improvements.



MANAGING STOCK USING THE STOCK CARDS





It is important to understand that:

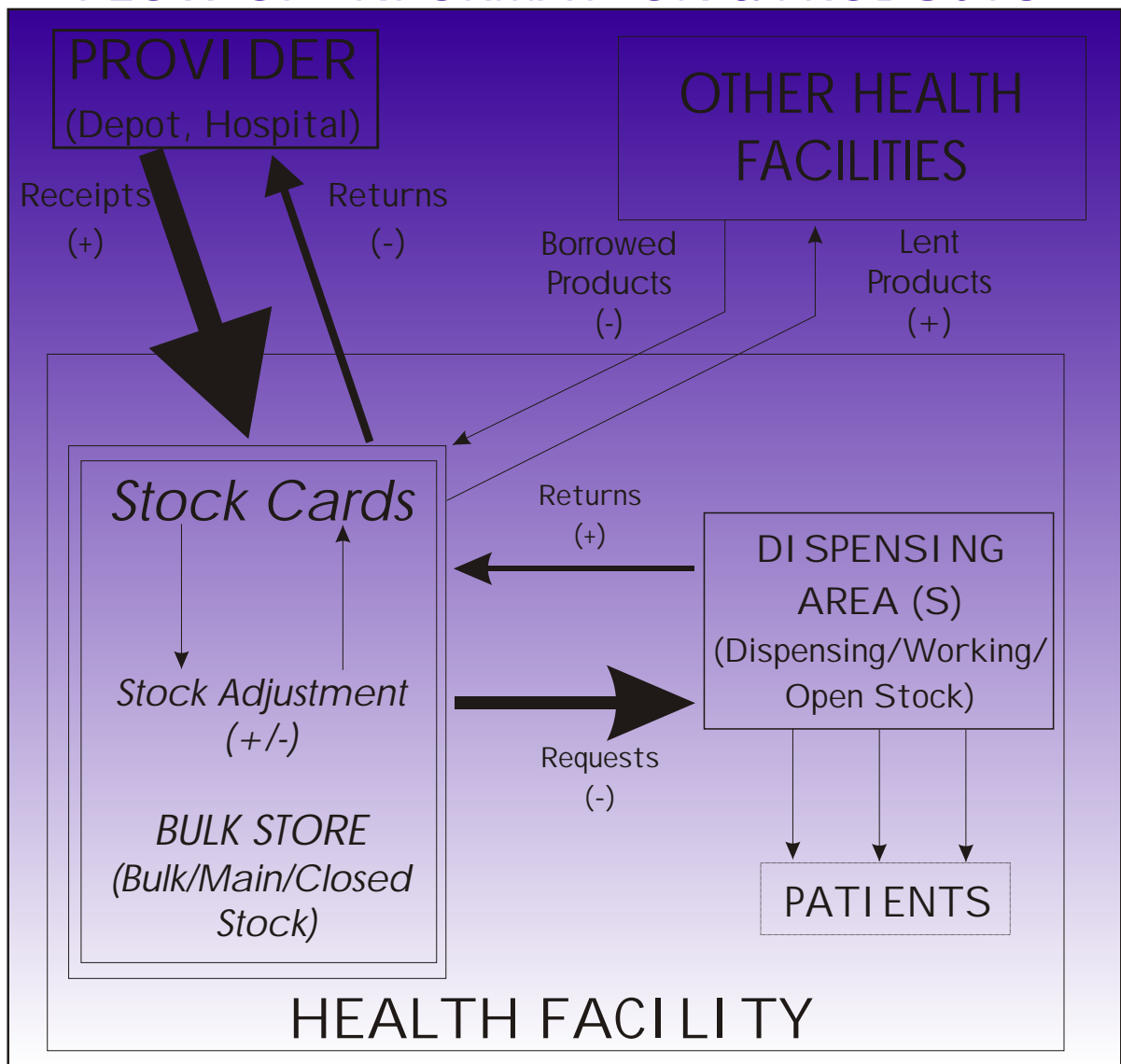
- Using the stock card does not mean recording every single item which has been dispensed directly to the patient. This would be too time consuming and would duplicate some of the recording being done at the dispensing point.
- To use the stock card you need two clearly defined areas, a bulk store or main store and one or several dispensing areas, such as a dispensary or a clinic room. The bulk/main or closed stock is stored in the main storage area. The dispensing/working or open stock is stored in the dispensing area. The dispensing stock, a small quantity of the most common items, is replenished on a regular basis out of the bulk store and only from there. Ideally these two areas should be physically separated. If this is not feasible, as in small size facilities, then the bulk stock should be in a cupboard or on a shelf, and the dispensing stock is kept on the dispensing counter.
- The stock cards are kept only in the bulk/storage area. Only transactions that occur at that level are recorded on the stock cards. These transactions include:
 - Orders: orders made to the regular supplier(s) of this health facility; depot, hospital, or special requests to another facility.
 - Receipts (+): receipts from an outside source, most likely the pharmaceutical depot or the district hospital; returns from another facility in case of exchange.
 - Issues (-): these include issues to the dispensing area(s) or to other facilities in case of exchange. Goods returned to the depot should be recorded as issued.
 - Stock Adjustment (+/-): after an audit or a physical stock count is performed, the required adjustments are entered on the stock cards.
- It is assumed that all quantities issued to the dispensing area(s) are eventually given to patients. Therefore, the quantities issued reflect to a great extent patient needs.



This figure summarises the typical flow of products and information. The impact on the facility stock is entered in brackets. A plus sign (+) describes a stock increase and a minus sign (-) shows a stock decrease. When a requisition is placed to the provider there is no stock movement, therefore, there is no impact on the stock. All this information is recorded on the stock cards, therefore the stock provides all the information needed to ensure proper management.

The stock movement from the dispensing area to the patient is not recorded on the stock cards.

FLOW OF INFORMATION & PRODUCTS





THE STOCK CARD

Inventory management is carried out by monitoring stock orders, receipts and issues on the stock card.

Once you have reorganised your storage area (and dispensing area), the next step is to prepare a card for each item that you have in stock.

The information recorded on the stock cards can be divided into two categories: fixed information, such as drug name, strength or size, form and issue unit; and variable information, such as the quantity received or issued on a given date, stock balance and reorder level.

When the pack size is used as the issue unit, a different card should be used for each pack size (ie: if you have paracetamol 500mg tablets in packs of 24 and in tins of 500, a separate stock card should be used for each pack size). This is important to avoid confusion while keeping the inventory and placing orders.

YELLOW CARD VS BLUE CARD

There are two types of stock cards, a Yellow Card and a Blue Card.

The Yellow card is always the first one to be used. It includes a summary of monthly issues. All orders, receipts and issues are first entered on a Yellow Card. When this card is completed, a Blue Card is attached to it for subsequent entries. When the first Blue Card is completed, another Blue Card is attached to it and so on. Therefore, the Yellow Card which is always the first one will always bear the number 1 next to Card No., and the first Blue Card will be number 2, the second Blue Card number 3, etc.

In this way the health facility has all historical information on the first card (Yellow Card), allowing the staff to quickly visualise consumption trends and facilitate calculating the reorder level.

After a three-year period, a new yellow card will be started and new blue ones will be attached to it and so on.



STOCK CARD

Product Name: Paracetamol										Card No: 1				
Strength : 500mg				Dosage Form: TAB				Issue Unit: 100/BOTTLE				NSN:1800978		
or Size				RECORD OF ORDERS, RECEIPTS & ISSUES								Est Reorder Level:40		
Date	Requisition No	Quantity Ordered	Voucher No	To/ From	Quantity Received	Quantity Issued	Stock Balance	Unit Price	Remarks					
9/4/98							100		Stock/J P					
10/4/98	88009	40		Hosp			100		KP					
10/4/98				Dispen		2	98		J P					
11/4/98				Hosp		5	93		KW. Borrowed					
20/4/98			88009	Hosp	35		128	13.00	Exp 9/2000					
21/4/98			Expired	Stock		5	123		Exp 12/98 J L					
22/4/98							123		I nventory J L					
TOTAL MONTHLY ISSUES														
Fiscal Year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Usage	Expired
FY: 97/98	80	67	0	45	90	80	X	60	50	45	x	89	606	10
FY: /														
FY: /														
Department of Health, Eastern Cape - Bin Card - Funded by the EQUITY Project														



STOCK CARD

[illegible]



USING THE STOCK CARD SYSTEM

For each item which is in stock, the following fixed information is entered on each inventory card when the cards are first introduced:

Card No The first card bears the number one ("1"), and is a yellow card. When this card is completed a blue one is used and the number two ("2") is assigned. The next card (a blue one) will be number three ("3"), etc ...

Product Name The generic name of the product, not the Brand Name (for example, Paracetamol not PANADO).

Strength/Size The dosage strength for drugs (for example, 250mg) or the size for medical supplies (for example, 21G, for needles).

<i>FORM</i>	<i>Description</i>	<i>FORM</i>	<i>Description</i>
AERO	= Aerosol/Inhaler	LOT	= Lotion
AMP	= Ampoule	MWH	= Mouthwash
CAP	= Capsule	NDISP	= Non-disposable Item
CREAM	= Cream	NDROP	= Nose Drops
CAPSR	= Capsule-sustained Release	ODROP	= Ophthalmic Drops
DISP	= Disposable Med. Supply	OINT	= Ointment
DROP	= Dropper	OOINT	= Ophthalmic Ointment
EDROP	= Ear Drops	PAST	= Paste
ELIX	= Elixir	POWD	= Powder
EMUL	= Emulsion	PED	= Pediatric Preparation
ENE	= Enema	PESS	= Pessaries
EOINT	= Ear Ointment	SET	= Set
GEL	= Gel	SOLU	= Solution-Non Injection
IMD	= Injection Multidose Vial	STRIP	= Diagnostic Strip
INH	= Inhaler	SUPP	= Suppository
INJ	= Injection Single Dose	SUSP	= Oral Suspension
IUD	= Intra Uterine Device	SYR	= Syrup
JEL	= Jelly	TAB	= Tablet/Capsule
KIT	= Kit	VCREAM	= Vaginal Cream
LIQ	= Liquid	VIAL	= Injectable vial



Dosage Form The dosage form for each stock item, using one of the following abbreviations:

For each pediatric dosage form, enter "PED" first (for example, the Dosage Form for a glycerine suppository for a child would appear as "PED/SUPP", for ampicillin suspension "PED/SUSP", etc).

Issue Unit	Description
BOTT	= <u>bottle</u> for containers smaller than one litre (e.g. 100ml for a suspension). This unit is used for diagnostic strips as well (e.g. 100Strips). <i>The size should be specified in brackets.</i>
DROPPER	= <u>dropper</u> for ENT, ophthalmic and pediatric preparations (the vial size should be specified in brackets).
EACH	= drugs/medical supplies having more than one unit in the original container but that can be broken down/dispensed as one unit (e.g. ORS sachet, syringe, glove, inhaler).
JAR	= for ointment (the size should be specified in brackets).
KG	= <u>kilogram</u> for a container greater or equal to one kilogram (e.g. 50kg is entered as "50" and the unit of issue is "kg").
LITRE	= <u>litre</u> for a container greater or equal to one litre (e.g. 2.5L is entered as "2.5" and the unit of issue is "litre").
ROLL	= for medical supplies (e.g. roll of plaster).
xxx/PK	= If the product is a solid form like a tablet or a capsule the number of tablet/capsule per <u>pack</u> is entered (eg "24/PK" means 24 tab per pack).
TUBE	= for ointment (size specified in brackets).
VIAL/AMP	= for injectable preparations (size specified in brackets).

The accuracy of this information is very important. The issue unit used should match the unit used when preparing the requisition, which is also the unit used to be issued by the depot. The same unit is also used to enter the quantities received. If the same product has two different issue units (e.g. 100ml and 75ml bottle), then two different cards must be used. For injectable preparations (or ointments) the issue unit will be a vial/amp (or a tube) and not the amount contained in a box.





NSN

NSN = National Stock Number. This is a number assigned specifically to a product at the national level. A unique number is assigned to each product and for each different pack size.

Est. Reorder Level

The estimated maximum quantity to be ordered according to the recommended formula.

All this information will be entered on the first page of each new card.

Example of a card header for Paracetamol 500mg Tab which is supplied in bottles of 100.

Product Name : PARACETAMOL

Card No: 1

Strength : 500mg
or Size

Dosage Form : TAB

Issue Unit : 100/BOTTLE

NSN :1800978

RECORD OF ORDERS, RECEIPTS & ISSUES

Est Reorder Level :40



HOW TO MANAGE THE CARDS

One of the key aspects of stock management is to be able to keep accurate records. It means that at any time the physical stock of a product should match the quantity recorded on the stock card. This can be easily achieved under one condition only; the stock card must be updated at the time the transaction occurs, that is, when items are received or issued. Quantities received or issued should NOT be entered on a separate ledger or a piece of paper and the stock card updated at a later date.

If you do not follow this rule your stock card will never be kept up-to-date.

Another important condition is to keep the stock card with the products:

- If there is enough space, the card must remain next to the product on the shelf.



- If storage place is limited the card must be stored on the same shelf as the product.

Having the cards next to the product facilitates and speeds up the record maintenance.



ENTERING DATA ON THE STOCK CARD





HOW TO ENTER THE OPENING STOCK BALANCE

Note:

Anytime information is entered, the date of the transaction is entered first and whoever enters the transaction on the card **MUST** initial the entry.

Once the cards are prepared with the header information, the next step is to enter the current stock balance to provide a starting point. The information is entered on the first line of the yellow card as follows:

Date Date the stock is checked using the following format: Day/Month/Year.

Stock Balance Usable quantity in stock. This quantity must be expressed according to the Issue Unit.

Remarks The word "Stock", "Inventory" or "Stock Taking" is entered. The initials of the person who checked the stock balance must also be entered.

Date	Requisition No	Quantity Ordered	Voucher No	To/ From	Quantity Received	Quantity Issued	Stock Balance	Unit Price	Remarks
9/4/98							100		Stock/J P



HOW TO ENTER A REQUISITION

Orders are placed by the requisitioning officer using the prescribed requisition form. Each item ordered is recorded on the card as follows:

Note

This is the only kind of transaction which does not modify the stock balance. However it is still important to record this information to avoid any inconsistency.

Date	Date the stock is ordered using the following format: Day/Month/Year.
Requisition No	The requisition number assigned to this request or obtained directly from the requisition form.
Quantity Ordered	Quantity ordered as per the requisition form (expressed in issue unit).
To/From	Name of the place or institution FROM which the goods have been ordered (eg. Depot or Hospital).
Stock Balance	Stock balance= previous balance.
Remarks	The initials of the person who placed the order must be entered.

Date	Requisition No	Quantity Ordered	Voucher No	To/ From	Quantity Received	Quantity Issued	Stock Balance	Unit Price	Remarks
10/4/98	88009	40		Umtata H			98		KP

Entering Data on the Stock Card



HOW TO ENTER ISSUES

At the health facility, the stock should be divided into two categories: the bulk stock and the dispensing stock.

- The bulk stock (main/closed stock) is stored in the main storeroom, if there is one, or on the shelves or cupboard of the facility.
- The dispensing stock (working/open stock) is kept in the dispensing area. The dispenser fills prescriptions from the dispensing stock only.

When a container from the dispensing stock is empty, the requisitioning officer replenishes its stock with another one from the bulk stock. The container issued must be from the batch that will expire first (FEFO = First Expired First Out). If the items do not have an expiry date, i.e., most of the medical supplies, then the first one received should go out first (FIFO = First In First Out).

Issues should be recorded on the stock card as follows:

Date	Date the stock is issued using the following format: Day/Month/Year.
To/From	Name of the location TO which the goods have been sent (e.g. Dispensary)
Quantity Issued	Quantity issued expressed according to the Issue Unit (10 if 10 packs are issued).
Stock Balance	Stock Balance = Previous Stock Balance - Quantity Borrowed/Issued.
Remarks	Notes concerning the transaction. The initials of the person who has completed the issue must be entered.

Date	Requisition No	Quantity Ordered	Voucher No	To/From	Quantity Received	Quantity Issued	Stock Balance	Unit Price	Remarks
10/4/98				Dispen		2	98		J P

Reminder:

The staff should not record every drug dispensed to the patient on the bin card but only the issues made from the bulk stock to the dispensing stock.

Entering Data on the Stock Card



HOW TO ENTER EXCHANGES BETWEEN FACILITIES

Sometimes a facility issues stock to another unit (a well stocked facility to another facility experiencing a stock-out). The borrowing facility should submit a written request to the providing facility using the Requisition Form.

The quantities borrowed must be entered on the stock card as follows:

Date	Date of issue using the following format: Day/Month/Year.
To/From	Name of the borrowing facility TO which the goods are being sent (e.g. Regional Hospital).
Quantity Issued	Quantity issued expressed according to the Issue Unit (10 if 10 packs are issued). The number is circled, preferably using a coloured pen.
Stock Balance	Stock Balance = Previous Stock Balance - Quantity Borrowed/Issued.
Remarks	Notes concerning the transaction. The initials of the person who issued to another facility must be entered. The word "Borrowed" is entered.

Date	Requisition No	Quantity Ordered	Voucher No	To/ From	Quantity Received	Quantity Issued	Stock Balance	Unit Price	Remarks
11/4/98				Hosp R		5	93		KW. Borrowed



HOW TO ENTER RECEIPTS

All deliveries should be received by the requisition officer on duty.

When the goods ordered arrive, the quantities received should be checked against the accompanying packing slip. If there are any discrepancies, the following should be checked:

- Were all the boxes received?
- Was anything broken?
- Are there any received goods that were not ordered?

If these issues cannot be resolved, the providing institution must be contacted.

To accurately reflect the stock balance, all receipts must be recorded as follows:



Date	Date the stock is entered using the following format: Day/Month/Year.
To/From	The supplier's name (e.g. "Depot" or "General Hospital").
Quantity Received	Quantity received (expressed in units of issue).
Stock Balance	$\text{Stock Balance} = \text{Previous Stock Balance} + \text{Quantity Received}$ (expressed in issue units).
Unit Price	If provided, the unit price of the goods received can be entered. The price must correspond to the issue unit.



Remarks

The expiry date of the product, if any, and the initial of the person who received the goods must be entered.

After recording the receipts, the requisitioning officer places the new stock alongside the regular stock on the shelves using the FIFO or FEFO method.


Date	Requisition No	Quantity Ordered	Voucher No	To/ From	Quantity Received	Quantity Issued	Stock Balance	Unit Price	Remarks
15/4/98			89987	Hosp	35		128	13.00	Exp 9/2000

In order to keep an accurate balance, other types of receivables (exchanges between districts, goods returned, etc) should be entered the same way.



RECEIVING SUPPLIES CHECKLIST

How are supplies received at your store? Put a check mark (☑) in the corresponding box when the statement is TRUE. Perform this self assessment and share the results with your health team and/or your supervisor.

No	Description	
1.	Deliveries are received by a health worker in person.	
2.	The condition of the boxes at time of delivery is checked by a health worker.	
3.	Deliveries are acknowledged and dated on the prescribed forms.	
4.	The delivery person signs the form before he leaves the facility.	
5.	The supplies received match the items listed on the delivery form.	
6.	The expiry dates of all items are checked before final acceptance.	

The health worker checks for poor quality items, such as:

7.	Poorly packaged refrigerated items.	
8.	Discolouration of drugs and vaccines, suspicious product settlement.	
9.	Broken containers and supplies spoiled by leakage.	
10.	Unsealed and unlabelled items.	

If deterioration is suspected, the health worker checks for:

11.	Unusual odours of tablets and capsules.	
12.	Damaged tablets or capsules.	
13.	Injectables with small particles that reflect light.	
14.	Unacceptable expired or poor quality items.	
15.	All discrepancies are documented.	
16.	As soon as the supplies are stored, all receipts are recorded on the stock cards.	

Once your assessment is completed, you must identify what can be done immediately to solve most of the issues, and implement the changes that are required.



INVENTORY ADJUSTMENT WHEN A PRODUCT IS EXPIRED, BROKEN OR DAMAGED

At regular intervals (e.g. every three months), the requisitioning officer should check the expiration date of the various batches, and discard expired, damaged or obsolete items. The stock card should be updated as follows:

Date	Date the expired drugs were removed from the shelf using the following format: Day/Month/Year.
Voucher No	Indicate "Expired", "Broken" or "Damaged".
To/From	Name of the institution to which the item is returned for disposal. Otherwise write the word "Destroyed".
Quantity Issued	Quantity removed from the shelves. The quantity is circled, preferably with a coloured pen.
Stock Balance	Stock Balance = Previous Stock Balance - Quantity Issued.
Remarks	The expiry date of the batch that has been removed.

Date	Requisition No	Quantity Ordered	Voucher No	To/From	Quantity Received	Quantity Issued	Stock Balance	Unit Price	Remarks
21/4/98			Expired	Depot		5	123		Exp 12/98 J P



PHYSICAL STOCK COUNT

At least once a year, the requisitioning officer takes a physical stock count to verify that the inventory balance shown on the card matches the actual stock on hand. If any discrepancies have been identified, one should check the following:

- if all issues have been entered on the card.
 - if all receipts have been entered on the card.
 - if there is any calculation error on the card.
- If the physical count matches the card balance, the card should be updated as follows:

Date Date the physical stock count is made using the following format: Day/Month/Year.

Stock Balance The actual stock on hand beneath the balance on the card. Since the actual stock matches the card balance, the two will be the same.

Remarks The word "Inventory" or "Stock Taking". The initials of the person who checked the stock.

Date	Requisition No	Quantity Ordered	Voucher No	To/ From	Quantity Received	Quantity Issued	Stock Balance	Unit Price	Remarks
22/4/98							123		Inventory J L

- If the physical stock is greater than the balance on the card:

Date Date the stock is entered using the following format: Day/Month/Year.

Quantity Received The extra number of issue units found. The data is circled, preferably using a coloured pen.

Stock Balance Stock balance = Previous balance + Number of Extra Issue units found from the previous balance.

[Entering Data on the Stock Card](#)



Remarks

Write "Inventory" or "Stock Taking". Every stock balance modification should be initialled.

Date	Requisition No	Quantity Ordered	Voucher No	To/ From	Quantity Received	Quantity Issued	Stock Balance	Unit Price	Remarks
22/4/98					10		113		I nventory J L

- If the physical stock is smaller than the balance on the card

Date

Date the stock is entered using the following format: Day/Month/Year.

Quantity Issued

The quantity of issue units which are missing in this column and circle it with a coloured pen.

Balance

The previous balance minus the number of missing issue units.

Remarks

"Inventory" or "Stock Taking". Every stock balance modification should be initialled.

Date	Requisition Nb	Quantity Ordered	Voucher Nb	To/ From	Quantity Received	Quantity Issued	Stock Balance	Unit Price	Remarks
22/4/98						10	113		I nventory J L

As noted before, some of the quantities issued or received should be circled. The reason for this is that these transactions are not regular transactions, therefore, they should not be taken in consideration when forecasting needs because they were not used to attend to the patient of the facility. This is discussed in more details in the section that deals with estimating reorder quantities.

Entering Data on the Stock Card





REPLENISHING STOCK WITH THE REQUISITION

PROVINCE OF THE EASTERN CAPE: ESSENTIAL DRUGS REQUISITION LIST (PHC)

1053

DEMANDER: _____

REQUISITION NO: _____

DEMANDER NO: _____

NOTE: Please note unit of issue!

Unit

On hand

Request

Approved

Issued

NSM(UM)

ICN(PE)

SECTION 1: ROUTINE CLINIC STOCK (LEVELS 1A and 1B)

Tablets & Capsules

Aluminium hydroxide + Magn trisilicate tab	24					180339400	3724245
Amoxycillin caps 250mg	15					180198245	3702336
Aspirin soluble tab 300 mg	24					180712302	3700626
Chlorpheniramine tab 4mg	100					109710231	3709076
Cotrimoxazole tab 80+400mg	20					100192291	3777240
Erythromycin stearate tab/cap 250mg	20					180342025	3718324
Ferrous sulphate compound tablets 170mg	28					180339438	3720622
Folic acid tab 5mg	28					100155490	3700826
Hydrochlorothiazide tab 25mg	14					180339454	3730022
Hydrochlorothiazide tab 25mg	28					180190405	3730024
Ibuprofen tab 200mg	15					180339460	3731638
Mebendazole tab 100mg	8					180339468	3748704
Paracetamol tab 500mg	10					180155482	3748276
Phenoxymethylpenicillin tab 250mg	20					180293951	3759884
Reserpine tab 0.25mg	14					100353093	3768974
Vitamin B complex tab	84					180155494	3762809

Liquids & Powders: Oral

Amoxycillin suspension 125mg/5ml	75ml					180711605	3802027
Chlorpheniramine 1.25mg & Phenylephrine 2.5mg /5ml	50ml					180714748	3812529
Chlorpheniramine syrup 2mg/5ml	50ml					180711414	3808083
Cotrimoxazole suspension 40+200mg/5mL	50ml					109711315	3877051
Erythromycin (est) suspension 125mg/5mL	100ml					180712134	3818144
Ferrous gluconate syrup 250mg/5ml	100ml					180079580	3820151
Gilyco Thymol Mouthwash	100ml					180712408	3825442
Multivitamin syrup	100ml					180718288	3883191
Nystatin suspension 100,000 IU/mL	20ml					180712135	3863848
Oral rehydration salt for solution (SAPA)	20x27g					180714067	3815599
Paracetamol syrup 120mg/5mL	50ml					180712404	3858235
Phenoxymethylpenicillin suspension 125mg/5mL	100ml					109703075	3808208
Vitamin B complex syrup	100ml					180755058	3884284

External Preparations: Liquids, Ointments & Creams

Aqueous cream	100g					180711189	3879248
Benzoic Acid 8%/Sal. Acid 5% oint (Whitfield)	25g					180715388	3878892
Benzylbenzoate 25% (25g/100mL)	100ml					180707445	3802878
Calamine lotion BP	100ml					180703855	3848018
Chlorhexidine 0.05% in water	50ml					180254409	3870105
Chlorhexidine 0.5% in Alcohol 70%	500ml					180708944	3809054
Gentian Violet 0.5% Aqueous Soln	0.5%					180712405	3860201
Methylsalicylate Ointment	25g					180711948	3878970
Nystatin topical ointment 100,000 IU/g, 15g	15g					109700000	3848828
Povidone Iodine 5% cream	25g					180119662	3863873
Povidone Iodine 5% cream	500g					180706213	3863871
Povidone Iodine 10% solution	1L					180712302	3861074
Zinc & castor oil ointment	25g					180715429	3810948

Eye, Ear, Nose Drops & Inhalers

Beclomethasone Inhaler 50 mcg/actuation	Compl					180708018	3804399
Chloramphenicol 1% eye ointment	3.5G					180700731	3808311
Oxymetazoline nasaldrops 0.25mg/mL	10ml					180707390	3807646



REPLENISHING STOCK WITH THE REQUISITION

Orders for pharmaceutical and medical supplies are placed to the pharmaceutical depot or other providers such as hospitals. The provincial pharmaceutical depots are the main source of supplies. They support health care services throughout the country by acting as the intermediary between suppliers and local health facilities.

REGULAR ORDERS

Each facility orders new stock from the provider (Depot or Hospital) according to an established delivery schedule.

The requisitioning officer calculates the quantity of drugs to order based on average monthly consumption and the re-order level (as explained in the re-ordering section).

The requisitioning officer responsible for each district orders drugs to replenish his stock by completing the Requisition Form as follows:

Demander Name: The Name of the Health Facility that makes the request.

Demander Code: The Code of the Health Facility that makes the request (optional).

1053

PROVINCE OF THE EASTERN CAPE: ESSENTIAL DRUGS REQUISITION LIST (PHC)							
DEMANDER: _____		REQUISITION NO: _____					
		DEMANDER NO: _____					
NB: Please note unit of issue!							
	Unit	On hand	Request	Approved	Issued	NSN(Um)	ICN(PE)
SECTION 1: ROUTINE CLINIC STOCK (LEVELS 1A and 1B)							
Tablets & Capsules							
Aluminium hydroxide + Magn trisilicate tab	24					180339400	3724245
Amoxycillin caps 250mg	15					180198245	3702336
Aspirin soluble tab 300 mg	24					189712392	3700526
Chlorpheniramine tab 4mg	100					189710231	3709876
Cotrimoxazole tab 80+400mg	20					180192291	3777240
Erythromycin stearate tab/cap 250mg	20					180342025	3718324
Ferrous sulphate compound tablets 170mg	28					180339438	3720622
Folic acid tab 5mg	28					180155490	3700826
Hydrochlorothiazide tab 25mg	14					180339454	3730022
Hydrochlorothiazide tab 25mg	28					180190405	3730024
Ibuprofen tab 200mg	15					180339460	3731539
Mebendazole tab 100mg	6					180339466	3746704
Paracetamol tab 500mg	10					180155482	3748275
Phenoxymethylpenicillin tab 250mg	20					180293951	3759684
Reserpine tab 0.25mg	14					180353093	3766974
Vitamin B complex tab	84					180155494	3782609



For each required product the requisitioning officer should complete :

On Hand	Quantity currently in stock
Requested	Write the quantity ordered. This quantity is expressed in issue units
Approved	Quantity approved by the supervisor.



The other columns are reserved for the Provider. The requisition officer and his/her supervisor must sign and date the requisition form.

Like the Stock Card, all quantities should be expressed according to the issue unit.

The Requisition Form is completed in quadruplicate. The requisitioning officer keeps the fourth copy, and sends the other three copies to the provider.

When the requisition form arrives at the depot (or at the hospital) , supplies are packed together for each facility (demandeur). If this is done at the depot, a computer invoice is generated using the computerised inventory system.

Copies N° 2 and N° 3 are sent with the goods to the demander. If the provider does not provide a separate invoice, the quantity distributed will be entered under the Remark Columns.

The requisitioning officer crosschecks the quantity received against the quantity on the depot invoice or the quantity entered under the Remarks columns on the Requisition Form. If any discrepancies are identified from this check, the officer-in-charge will immediately contact the provider and try to resolve the issue; otherwise the copies are signed and sent back to the provider. The other copy is filed at the facility level.

The steps outlined in the previous paragraph can be modified to accommodate various situations.



EMERGENCY ORDERS

Sometimes a requisitioning officer must order replenishments on an emergency basis; that is, between two established delivery dates. In such cases, the requisitioning officer must also use a requisition form. The same process applies for emergency orders as for regular orders.

MONTH END PROCEDURES

It is a good practice to check your stock on a regular basis, and the end of the month is a good time to do so. One might want to do this on a rotating basis, which is to check the tablets and ointments, for example, one month, and to check the injectable and large volume parenteral preparations the next month, etc.



Another recommended practice is to draw a line on your stock card when the month is over, using a red or green pen. This allows one to identify quickly the month period and facilitate the calculation for a particular month.

STOCK CARD CHECKLIST

How are the stock cards used in your facility? Put a check mark (☑) in the corresponding box when the statement is TRUE. Perform this self assessment and share the results with your health team and/or your supervisor.

No	Description	<input type="checkbox"/>
1.	There is a stock card for each item in the store.	<input type="checkbox"/>
2.	All information on the stock card is up-to-date and accurate.	<input type="checkbox"/>
3.	The stock card is kept on the same shelf as the item.	<input type="checkbox"/>
4.	Information is recorded on the stock card at the time of movement.	<input type="checkbox"/>
5.	There is an accurate running tally kept in the Balance column.	<input type="checkbox"/>
6.	A physical count is made at regular intervals, such as once a month.	<input type="checkbox"/>

Note

Once your assessment is completed, you must identify what can be done immediately to solve most of the issues, and implement the changes that are required.



HOW TO CALCULATE FUTURE NEEDS



Note

In the following section the formulae which are introduced do not need any particular knowledge besides knowing how to add, divide and multiply. Whenever possible each general formula has been separated into smaller ones in order to facilitate the understanding and simplify the learning process.



FORECASTING INVENTORY NEEDS

There are two methods commonly used to estimate drug needs for a drug procurement system: the consumption method, which uses historical consumption data; and the morbidity method, based on the number of cases for each major prevalent disease or health condition.

This manual focuses on using the consumption method through the use of the data which are recorded on the stock card. The consumption method is the simplest way for a requisitioning officer to calculate drug requirements, because the requisitioning officer has the information on drugs dispensed readily available - on stock cards, requisitions, ledgers, etc. Nonetheless, it is important to realise that other factors such as stock-outs, seasons, formulary changes, short shelf-life and storage space can affect the consumption.

The morbidity method takes into consideration the prevalence of various diseases in the community and the number and ages of patients to be treated. Drug requirements are then estimated using standard treatment guidelines.

The morbidity method is accurate but requires data which is not readily available to a requisitioning officer. Furthermore, data analysis can be difficult since a larger data set is required to accurately assess disease patterns.

Morbidity analysis is useful, however, when no consumption records are available, or when assessing whether drug prescribing is done in accordance with standard treatment guidelines. The morbidity method is also used to forecast drug needs for immunisation programmes.



HOW TO CALCULATE THE MONTHLY CONSUMPTION

Although simple to calculate, the monthly consumption is one of the most critical pieces of information to obtain in order to forecast your needs.

For each stock item and at the beginning of every month, the requisitioning officer calculates the quantity used during the previous month. The result is entered on the stock card in the box that corresponds to the appropriate month.

There are two ways to calculate the monthly consumption:

- Add all quantities issued to your dispensing units during this period.
- OR
- Add the quantity of drugs received during the month to the balance at the beginning of the month, and subtract the month end stock balance from this subtotal.

$$\text{Monthly Consumption} = (\text{Beginning of Month Stock} + \text{Monthly Receipts}) - \text{Month End Stock Balance}$$

For example;

The stock card for Paracetamol 500mg Tablets shows the following:

- Beginning of April Stock Balance = 200 packs of 10
- Total receipts during April = 100 packs of 10
- Stock balance at the end of April = 50 packs of 10

Therefore the Monthly Consumption during the Month of April
 $= (200 + 100) - 50 = 250$ (250 packs of 10)

Warning:

The quantities added for the month must reflect only the quantities that have been issued to your own patients. Therefore quantities that have been "issued" for the following reasons should not be included:

- expired
- broken or damaged
- stock adjustment
- lent to another facility

If the quantities issued, under these circumstances, are circled it is easier to identify them.



Note:

It is not possible for the monthly consumption of a given drug to be a negative number, as this would mean that the drug was distributed although the facility was out of stock. If the monthly consumption appears to be a negative number, the requisitioning officer should check his calculations for an error, or check the inventory card to verify that the data recorded is accurate.

There are three kinds of figures for the monthly consumption:

- A positive number - If a product was issued during the previous month to at least one patient, the monthly consumption should be positive.
- Zero - If a product was not issued during the previous month, the monthly consumption is zero.
- X - If the drug was out of stock during the whole month an X is entered in the corresponding box. An X will be entered as long as the item is out of stock.

Once calculated, the monthly consumption should be entered on the yellow card in the corresponding cell.

TOTAL MONTHLY ISSUES														
Fiscal Year	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	Usage	Expired
1998/99	80	67	0	45	90	80	X	60	50	45	X	89	606	10



HOW TO CALCULATE THE ANNUAL CONSUMPTION

On the section reserved for entering the monthly issues, the first month of the consumption table is not the first month of the calendar year but the first month of the fiscal/financial year. As budget monitoring is an essential concern, having the months in this order will facilitate the analysis of information for the fiscal/financial year.

At the beginning of each fiscal/financial year, the health staff totals the monthly consumption of each drug over the past year. The result is entered in the "total monthly issues" table under "Usage".

Next to it in the "Expired" box, the total expired quantities that were removed from the stock are recorded on the stock card.

TOTAL MONTHLY ISSUES														
Fiscal Year	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	Usage	Expired
FY:98/99	80	67	0	45	90	80	X	60	50	45	X	89	606	10
FY:99/00														
FY: /														

In the example above the consumption for the financial year
= 606 units, that is the sums of all the monthly consumption =

$$80 + 67 + 45 + 90 + 80 + 60 + 50 + 45 + 69 = 606$$

TOTAL CONSUMPTION FOR A GIVEN PERIOD =
SUM OF THE MONTHLY CONSUMPTION DURING THE SAME PERIOD



HOW TO CALCULATE THE AVERAGE MONTHLY CONSUMPTION

The next step is to determine the average monthly consumption (AVG). The average monthly consumption is calculated for a particular period which usually does not exceed 12 months.

The method to calculate the average monthly consumption for a particular period is simple and involves the following parameters:

- Forecasting Period = the number of months included in that period.
- Total Consumption = the sum of the monthly issues obtained from the "total monthly issues" table. If the forecasting period is equal to the fiscal year, the total consumption is summarised in the "Usage" box.
- Number of Months Out of Stock = the number of months included in that period during which the product was out stock (number of months with an V in the "total monthly issues" table during this period).

The average monthly consumption can be calculated using the following formula:

$$\text{AVERAGE MONTHLY CONSUMPTION} = \frac{\text{TOTAL CONSUMPTION FOR A GIVEN PERIOD}}{(\text{FORECASTING PERIOD} - \# \text{ OF MONTHS OUT OF STOCK})}$$

TOTAL MONTHLY ISSUES														
Fiscal Year	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	Usage	Expired
FY98/99	80	67	0	45	90	80	X	60	50	45	X	89	606	10

In the example above, the total usage for the financial year (606 units) is divided by 10, and not by 12, because the item was out of stock for two months (October and February) during that period. Therefore the average monthly consumption is equal to $606 \div (12 - 2) = 60.6$ - 61 units.

Once the average monthly consumption is known, the requisitioning officer can use this data as a guideline to anticipate future drug needs.

Note:

The requisitioning officer can also calculate the monthly consumption at any point during the year by dividing the total consumed at that point by the number of months that have elapsed since the beginning of that year.



HOW TO ASSESS YOUR STOCK LEVEL

To estimate how long the current stock will adequately meet the needs, the requisitioning officer divides the stock on hand by the average monthly consumption:

$$\text{STOCK LEVEL (IN MONTHS)} = \frac{\text{STOCK ON HAND}}{\text{AVG MONTHLY CONSUMPTION}}$$

For example, if the average monthly consumption of Amoxicillin 250mg capsules is 40 packs of 50 capsules per month, and the current stock is 160 packs of 50 capsules, the stock level is equal to four ($160 \div 40 = 4$). It means that the quantity in stock should last for another four months. This is true, of course, providing that there are no major changes in the consumption pattern.

If the current stock of Amoxicillin 250mg capsules was equal to 400 packs of 50 capsules, the stock level would be equal to 10 ($400 \div 40 = 10$). It means not only that the quantity in stock should last for another 10 months but that the product is overstocked.

Once the average monthly consumption is known, it is a very useful and easy exercise to check the stock level for essential items and/or expensive items on a routine basis.

Note:

As a rule of thumb, if you get supplies once a month your stock level should NOT be greater than three month's supply at any time.

When items are overstocked, they should be returned to either the depots (or hospitals) or redistributed to other health facilities. District or regional meetings are excellent opportunities to explore the possibility of redistributing overstocked items.



FACTORS THAT INFLUENCE THE ORDER QUANTITY

When calculating the quantity to order, many factors should be taken into consideration. These factors can be divided into two broad categories:

- Constant factors: do not vary too much from month to month. Their values are reasonably predictable and can be easily calculated from historical data.
- Variable factors: vary regularly or cannot be anticipated.

Constant Factors

- Average Monthly Consumption: average quantity used per month.
- Supplier Lead Time: length of time which elapses between the time the order is placed and the time the order is received at your facility.
- Safety Stock: minimum quantity that should be in stock at any time. In most cases, this quantity should not exceed one month's supply of stock.
- Quantity on Order: quantity already ordered.
- Stock Balance: balance in stock at the time of the order.
- Quantity Back ordered (or Dues Out): quantity that was not delivered during a previous order but that can be expected (not all systems deal with back orders).
- Procurement Period/Order Frequency: length of time between two orders/how often an order is placed.
- Storage Capacity: the smaller the facility storage, the less it can store.



Variable Factors

- Campaign: if a campaign is launched to promote a particular product, its consumption is expected to increase during the campaign (e.g. contraceptives, vaccines).
- Outbreak: if there is an outbreak of a particular disease, the consumption of the products that are needed to treat this outbreak is expected to increase.
- Stock Out Period: period during which an item was needed but was not in stock. Therefore the current consumption might not reflect the actual needs.
- Statistics: this often refers to the number of cases for a particular health condition, usually chronic disease cases. When using the consumption method to estimate your needs (the one used in this manual) this information is useful to check whether the quantities issued for a particular treatment correspond to the reported number of cases.

For example, if the standard treatment for a particular health condition is one tablet every month for each patient and the average monthly consumption for this tablet is equal to 10.000, then we expect to have an estimated 10.000 patients treated every month. If the statistics show that actually there are 5.000 patients reported for that particular health condition, we have to identify why there is such a gap. This could be explained by; an overuse of the prescribed drug (disregard of the standard treatment guidelines), use of this drug for another condition, leakage, etc.

- Seasonal Factor: some diseases are more frequent during a particular period of the year. Therefore the consumption of the recommended medicines for these diseases increases (i.e. Flu in winter, diarrhoea during the rainy season, etc.).
- Shelf Life: how many months before the product will expire?



- New Prescriber: if a new prescriber is appointed at a facility level, one can expect some changes in the use of certain products.
- Allocated Budget: when products are purchased against a limited facility budget, very often health workers have to make choices and sometimes decrease the ordered quantity of some non-essential items.

I deally one should have a clear idea of how all the above factors influence the quantity to order. As mentioned before, some of them can be clearly defined while others are unpredictable (e.g. Outbreak).

Importance of Stock Card

The previous factors which are underlined can be obtained directly from the stock cards if these are properly maintained.

The easy way out would be to order enough not to have to worry about potential stock out, but the financial resources are never unlimited. One should also always remember that the greater the stock, the more funds are immobilised on the shelves and the greatest possibility that stocks will expire.

The “art” of good inventory management is to keep a balance between the benefits of keeping inventory level against the cost associated with it.

BENEFITS	COSTS
<ul style="list-style-type: none">• Minimise Life-threatening Shortages• Facilitate Bulk Purchasing• Increase Transportation Efficiency• Protect Against Fluctuations	<ul style="list-style-type: none">• Capital Cost• Expiration• Spoilage• Obsolescence• Storage• Pilferage



HOW TO CALCULATE THE QUANTITY TO ORDER

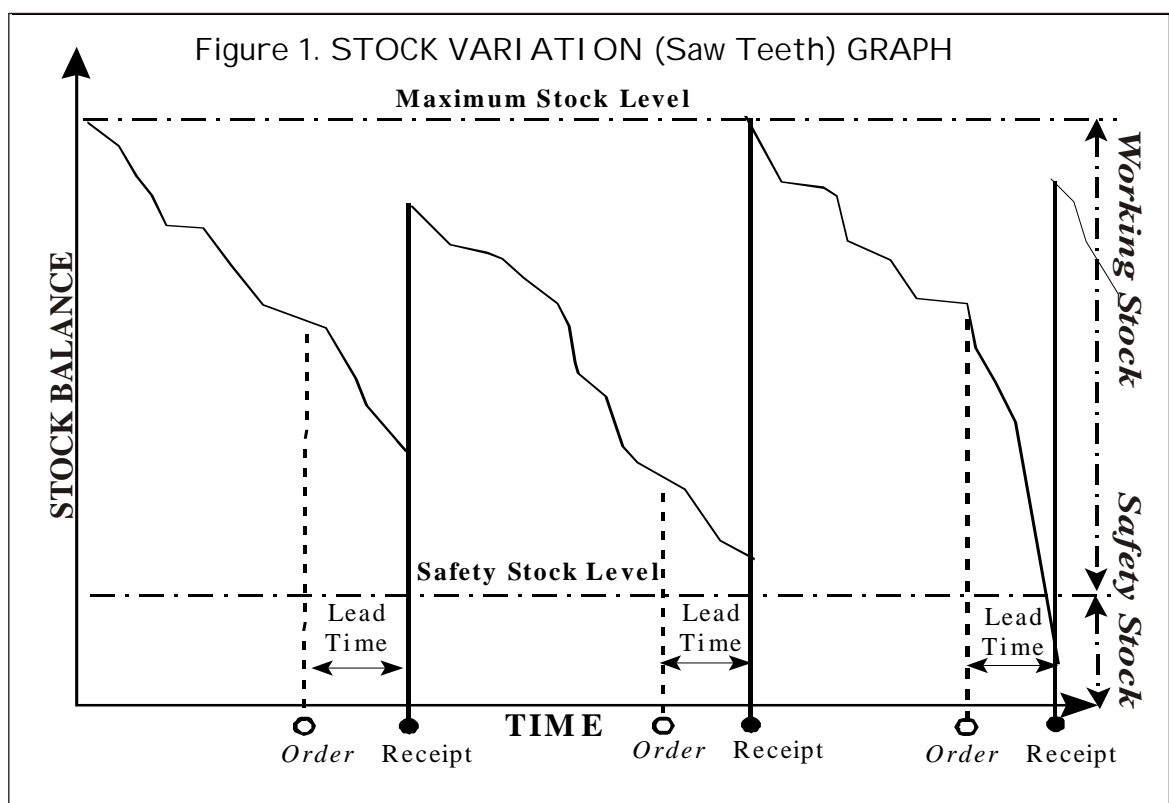
UNDERSTANDING STOCK VARIATION

Beside monitoring the stock status, the main objective of using stock cards is to be able to order the right quantity at the right time, i.e. to have enough stock to attend to the patients until the next order arrives.

In this manual we use two calculations to manage stock re-ordering, which involve two steps:

- 1) Calculating the Maximum Stock
- 2) Calculating the Quantity to Order

In a typical inventory graph (Figure 1. the “saw teeth” graph) the stock level goes down with time, during which period an order is placed, ideally before the safety stock level is reached. When the order arrives, the stock level is brought back to maximum. The quantity starts to be used again and the stock level goes down with time, and so on.



How to Calculate the Quantity to Order



This graph shows two main zones - the “working stock” zone and the “safety stock” zone. The “art” of inventory management is to ensure that the stock is replenished before the stock level falls below the safety stock level while not going over the maximum stock level.

In this model orders are placed at regular intervals. As mentioned earlier, when an order is placed the quantity ordered should be just enough to bring the stock balance to the maximum stock level. However, because of unexpected changes in the consumption patterns which can occur during the lead time period, average monthly consumption can change as well. Therefore, when the goods are received the stock level is not back to the maximum stock level. It could be lower or over, but the situation can be corrected when the next order is placed.



HOW TO CALCULATE THE MAXIMUM STOCK

In this manual we use the maximum stock approach, i.e. to replenish the stock to an optimal maximum stock level every time an order comes.

In order to simplify the calculation, we have predefined what we call the maximum stock factor. The maximum stock factor varies with the frequency of orders and the lead time according to the following table:

MAXIMUM STOCK FACTOR TABLE				
ORDER FREQUENCY	LEAD TIME			
	1 Week	2 Weeks	4 Weeks	6 Weeks
Once a week	0.5	1		
Every 2 weeks	1	1	2	
Once a month	1.5	2	3	4
Every 6 weeks	2	3	4	5
Every 2 months	3	4	5	6
Every 3 months	4	5	6	7

To identify the maximum stock factor one should draw two imaginary lines. One horizontal line on the corresponding order frequency and one vertical line on the lead time column. The meeting point of these two lines indicate the maximum stock factor.

For example:

- if supplies are ordered once a month and the lead time from the source is equal to four weeks (or one month), then the maximum stock factor is equal to three.



MAXIMUM STOCK FACTOR TABLE				
ORDER FREQUENCY	LEAD TIME			
	1 Week	2 Weeks	4 Weeks	6 Weeks
Once a week	0.5	1		
Every 2 weeks	1	1	2	
Once a month	1.5	2	3	4
Every 6 weeks	2	3	4	5
Every 2 months	3	4	5	6
Every 3 months	4	5	6	7

- if supplies are ordered every six weeks and the lead time from the source is equal to one week, then the maximum stock factor is equal to two.

Once the maximum stock factor is identified, the next step is to calculate the maximum stock using the following formula:

$$\text{MAXIMUM STOCK (in Issue Units)} = \text{AVERAGE MONTHLY CONSUMPTION} \times \text{MAXIMUM STOCK FACTOR}$$

The next step is to compare this maximum stock with the current stock balance of usable stock (without any expired items):

- If the current stock balance is greater or equal to the maximum stock, there is no need to place an order.
- If the current stock balance is smaller than the maximum stock then an order must be placed unless the product is discontinued or its use is influenced by some external factors such as the end of a season, end of a campaign, or modification of the EDL.

For example: If supplies are ordered once a month and the lead time from the source is equal to four weeks (= one month), then the maximum stock factor is equal to three. The average monthly consumption is equal to 50 units and the current stock balance is equal to 80 units. Therefore the maximum stock is equal to:

$$50 \text{ units (Average Monthly Consump.)} \times 3 \text{ (Max.Stock Factor)} = 150 \text{ units}$$

Since the stock balance is lower than the maximum stock,
There is a need to place an order.

How to Calculate the Quantity to Order



- if supplies are ordered once a week and the lead time from the source is equal to two weeks, then the maximum stock factor is equal to one. The average monthly consumption is equal to 40 units and the current stock balance is equal to 58 units. Then the maximum stock is equal to:

40 units (Average Monthly Consump.) x 1 (Max.Stock Factor)= 40 units.

Since the stock balance is over the maximum stock, there is no need to place an order.

- if supplies are ordered every two weeks and the lead time from the provider is equal to four weeks, then the maximum stock factor is equal to two. The average monthly consumption is equal to 30 units and the current stock balance is equal to 55 units. Then the maximum stock is equal to:

30 units (Average Monthly Consump.) x 2 (Max.Stock Factor)= 60 units.

Since the stock balance is just under the maximum stock an order may be placed for a very small quantity. A larger quantity can be ordered with the next scheduled order.

The following chapter describes how to calculate the optimum quantity to order in order to avoid stock outs or overstocks.



HOW TO CALCULATE THE QUANTITY TO ORDER

Important

Without knowing the exact average monthly consumption, it is almost impossible to determine with accuracy how much to order. The cards introduced in this manual are designed to facilitate this work. Therefore it is very important to maintain the "Monthly Issues" table up-to-date.

One very common mistake is to order the quantity which is equal to the maximum stock minus the current stock. This does not work because during the lead time period issues are made from the stock, therefore, when the order is received, the stock balance is less and the sum of the stock plus the quantity received is not sufficient to reach the maximum stock. The solution is to add to the order a quantity equivalent to the amount likely to be issued during the lead time period.

The concept behind calculating the quantity to order is simple: when the order is received, the quantity ordered should replenish the stock back to the maximum level.

As explained in the previous chapter, if the maximum stock is greater than the stock balance, then there is no need to place an order. Therefore there is a need to know the maximum stock before making any decision.

At that stage one needs to know the following variables:

- The Average Monthly Consumption
- The Stock Balance when the order is placed

The Average Monthly Consumption has already been discussed in detail. The stock balance is available from your card or a physical count if necessary.

and two relatively constant parameters:

- The Lead Time
- The Order Frequency

The lead time and the order frequency are known from your experience (or from an order schedule).

How to Calculate the Quantity to Order



To simplify the formula the reorder factor table has been developed.

Once an order must be placed, the reorder factor can be identified using the following table:

REORDER FACTOR TABLE				
ORDER FREQUENCY	LEAD TIME			
	1 Week	2 Weeks	4 Weeks	6 Weeks
Once a week	0.75	1.5		
Every 2 weeks	1.25	1.5	3	
Once a month	1.75	2.5	4	5.5
Every 6 weeks	2.25	3.5	5	6.5
Every 2 months	3.25	4.5	6	7.5
Every 3 months	4.25	5.5	8	9.5

To identify the reorder factor one should draw two imaginary lines. One horizontal line on the corresponding order frequency and one vertical line on the lead time column. The meeting point of these two lines indicate the reorder factor.

For example:

- if supplies are ordered once a month and the lead time from the source is equal to four weeks (= one month), then the reorder factor is equal to four.

REORDER FACTOR TABLE				
ORDER FREQUENCY	LEAD TIME			
	1 Week	2 Weeks	4 Weeks	6 Weeks
Once a week	0.75	1.5		
Every 2 weeks	1.25	1.5	3	
Once a month	1.75	2.5	4	5.5
Every 6 weeks	2.25	3.5	5	6.5
Every 2 months	3.25	4.5	6	7.5
Every 3 months	4.25	5.5	8	9.5

How to Calculate the Quantity to Order



- if supplies are ordered every six weeks and the lead time from the source is equal to two weeks (half a month), then the reorder factor is equal to three and a half.

Once the reorder factor is identified, the next step is to calculate the quantity to order using the following formula:

$$\text{QUANTITY TO ORDER (in Issue Units)} = (\text{AVERAGE MONTHLY CONSUMPTION} \times \text{REORDER FACTOR}) - \text{STOCK}$$

Note:

If the result is too small, an order might be placed only on the next scheduled date. In some cases, if the demand for this product is related to a particular season and the season is over, the quantity to order is decreased or nothing is ordered.

Once the Maximum Stock and the Reorder Factor concepts are mastered the following table which combines both factors can be used.

COMBINED MAXIMUM STOCK & REORDER FACTOR TABLE								
ORDER FREQUENCY	LEAD TIME							
	1 Week		2 Weeks		4 Weeks		6 Weeks	
	MAX STOCK	REORDER	MAX STOCK	REORDER	MAX STOCK	REORDER	MAX STOCK	REORDER
Once a week	0.5	0.8	1	1.5				
Every 2 weeks	1	1.3	1	1.5	2	3		
Once a month	1.5	1.8	2	2.5	3	4	4	5.5
Every 6 weeks	2	2.3	3	3.5	4	5	5	6.5
Every 2 months	3	3.3	4	4.5	5	6	6	7.5
Every 3 months	4	4.3	5	5.5	6	8	7	9.5



EXAMPLE A:

Product A's average monthly consumption is equal to 45 units. This product is ordered every two weeks and the lead time is equal to four weeks. The current stock is 60 units. If an order has to be placed, how much has to be ordered?

- Firstly, the maximum stock factor has to be identified. In this case it is equal to two. Therefore the maximum stock is equal to 90. The current stock balance is 60 so an order has to be placed.
- Secondly, the reorder factor must also be identified. Using the above information, the reorder factor is equal to three.
- Thirdly, the quantity to order is calculated using the recommended formula;

$$\text{Quantity to Order} = [45 (\text{AVG}) \times 3 (\text{reorder factor})] - 60 (\text{stock}) = 30.$$

EXAMPLE B:

Product B's average monthly consumption is equal to 30 units. This product is ordered once a month and the lead time is equal to six weeks. The stock balance is equal to 90 units. How much should be ordered?

- Firstly, the maximum stock factor is identified. In this case it is equal to four. Therefore the maximum stock is equal to 120. The current stock balance is 90 so an order has to be placed.
- Secondly, the reorder factor is identified using the reorder factor table. Using the above information, the reorder factor is equal to five and a half.
- Thirdly, the quantity to order is calculated using the recommended formula;
$$\text{Quantity to Order} = [30 (\text{AVG}) \times 5.5 (\text{reorder factor})] - 90 (\text{stock}) = 75.$$

Warning :

These formulae should be used only as guidelines in estimating the precise quantities to order. A modification to any one of the components of the procurement cycle (time of delivery, expiration date, disease outbreak, new physician, etc) will influence the entire system. The requisitioning officer's individual experience, as well as the nature of each drug/product, are essential considerations in arriving at a final qualitative and quantitative decision.



ORDERING SUPPLIES CHECKLIST

Answer (in pencil) the following questions. If delivery schedules change, erase and record the new delivery information. Keep the answers current.

1. When are supplies delivered? _____
2. How often are supplies delivered? _____
3. What is your facility's order frequency? _____
4. What is your lead time? _____

Put a check mark (✓) in the corresponding box when the statement is TRUE. Perform this self assessment and share the results with your health team and/or your supervisor.

No	Description	✓
5	You know how to calculate the Average Monthly Consumption (AMC) .	
6	You take into consideration stock out periods when calculating the AMC .	
7	You calculate the Maximum Stock by multiplying the AMC by the Maximum Stock Factor .	
8	The Maximum Stock has been calculated for each item in the store.	
9	The Maximum Stock is recorded on each item's stock card.	
10	You place your order when the stock balance <i>is less</i> than the Maximum Stock .	
11	When you order, you use the Quantity to Order formula.	
12	All orders are placed in writing using the prescribed forms.	
13	All information on the requisition is complete, accurate and written clearly.	

Note

Once your assessment is completed, you must identify what can be done immediately to solve most of the issues, and implement the changes that are required.



STOCK CARDS AND BUDGET MANAGEMENT





STOCK CARDS AND BUDGET MANAGEMENT

Budget management is a function which is becoming an integral part of any health facility management.

Given the current economic trends of the public sector, there is a need to optimise the use of resources which are getting more limited from year to year.

The stock card can assist the budget management process by providing essential information on product consumption.

Once the consumption of the most used items is compiled for a particular period (every six months or every year), it is easy to multiply the consumption figures (obtained from the stock cards "Total Monthly Issues" summary table) by the latest cost (which was recorded on the stock card after the last receipt) and get a clear idea of the cost of this particular item:

$$\text{ESTIMATED ITEM "A" COST FOR A SPECIFIC PERIOD} = \text{TOTAL CONSUMPTION FOR THAT PERIOD} \times \text{LAST COST PAID}$$

On the other hand, all receipts must be costed and totals for the year calculated, and this will give us a clear picture of the total expenditures for the facility.

$$\text{TOTAL FACILITY EXPENDITURES FOR A SPECIFIC PERIOD} = \text{SUM OF RECEIPTS FOR THAT PERIOD}$$

The next step is to identify what percentage of the overall expenditures is spent on the most "popular" products.

Example:

$$\begin{aligned} \text{\% OF TOTAL EXPENDITURES SPENT ON ITEM "A" FOR A SPECIFIC PERIOD "X"} &= \\ \frac{\text{ESTIMATED ITEM "A" COST FOR THAT PERIOD}}{\text{TOTAL FACILITY EXPENDITURES FOR THAT PERIOD}} \times 100 \end{aligned}$$



The total quantity issued for Paracetamol for the last financial year is equal to 1000 units. The last price charged during the last delivery was R15.00 per issue unit. The product cost for the last financial year is therefore equal to :

$$1000 \times R15.00 = R15\ 000$$

During this period, the total value of the drugs received was equal to R300,000 Rands. Therefore this product represents 5%

$$[(15\ 000 \div 300\ 000) \times 100] = 5$$

of the overall expenditures for this particular financial year.

When a computerised system is available, it is quite easy to perform this exercise for all items, however when done manually, one should focus, as mentioned earlier, on the most "popular" items and on the most expensive ones.

As a rule of thumb when one does this analysis, called Pareto or ABC analysis, if we classify the items by descending order according to the value (the most expensive on the top), we find that:

- about 15 to 20% of the top number of items are responsible for about 70 to 80% of the expenses. This is Group A.
- about 10 to 15% of the next number of items are responsible for about 10 to 15% of the expenses. This is Group B.
- about 60 to 80% of the last number of items are responsible for only 5 to 15 % of the expenses. This is Group C.

There are two main possible reasons for an item to belong to Group A:

- it is a cheap item (i.e. aspirin tablets) but widely used;
- it is an expensive item (i.e. third generation cephalosporins) and use should be restricted to some specific conditions but which is misused.

It is therefore important to identify the items that belong to Group A. Any changes in the consumption or prices of one of these items will have a significant impact on the overall expenditures.



This approach allows the manager to know “where the money goes” but does not indicate whether the money is spent on the right products. Therefore to complement this exercise, one also needs to classify each item under three categories: V, E or N.

- V = Vital items; which are potentially life saving, and which have a significant impact if not available (digoxin, I V fluids).
- E = Essential items; which are effective against less severe, but nevertheless significant forms of illness (medicines for chronic conditions, antibiotics)
- N = Non-Essential; which are used for minor or self limited illnesses, which are of questionable efficacy, and high cost items with a marginal therapeutic advantage (cough mixtures, vitamins, antacids, etc.).

There are no standard VEN classifications as priorities change according to the level of care which is expected to be delivered from a particular facility, or even with the geographical location of the facility (e.g. malaria medicines are essential or vital in malaria infected areas while non-essential in malaria-free zones).

Once the Group A items are identified and tagged according to the VEN Classification, one would expect to have only V or E items in Group A. Any N items that belong to Group A should be investigated and eventually orders should be substantially reduced. Prescribers and even patients should be informed about these measures and if need be further education should be given.

This paragraph shows the importance of maintaining accurate and up-to-date stock cards in order to support the decision making process and the improvement of the delivery of health care services.



GOOD DISPENSING PRACTICES





PREPARE YOUR DAILY SUPPLIES

Before dispensing drugs to patients, one should:

- Check the quantities which are available in the dispensing area and estimate the quantities needed to supply the patients.
- If necessary, the stock must be replenished from the bulk store.
- Once needs are identified, a request is sent to the storekeeper of the bulk store area. All quantities must be recorded (as well as the date and the destination) on the stock card when goods are removed from the shelves.
- Supplies must be collected from the shelves according to the FI FO or FEFO rules.
- If later during the day other items are running short, the same procedure applies.
- Once the supplies are received, they should be organised in the dispensing area so the dispensing is also done according to the FEFO or FI FO rules.

IMPORTANT

The general attitude is that when patients are already in the facility, the dispensing officer tends to attend to the patient as quickly as possible, without replenishing the dispensing stock, or replenishing the stock without entering the information on the card. One has to educate the patients (the long-term beneficiary of proper inventory management), since this is the only way to secure the availability of the right drug at the time and in the right quantity. Much has to be done in educating the patient to appreciate the kind of service delivered at the health facility, very often under very stressful conditions for the health worker.



DISPENSING TO THE PATIENT

Dispensing is done according to the following dispensing cycle:

The following rules should be used when dispensing:

- The generic name is checked, and if needed the prescriber is consulted.
- The quantity, form and strength prescribed must be compatible with the age, weight and sex of the patient.
- If feasible, one must check that the standard treatment guidelines are followed. If these guidelines are not followed, the prescriber must be consulted.
- Items should be dealt with one at a time.
- The name on the container, the form and the strength are checked against those on the prescription.
- If it is a solid dosage form (i.e. tablet or capsule), the quantity prescribed is counted using a counting tray (or if not the top of a tablet container).
- Hands must not be in contact with the product, a spatula (or a clean tongue depressor) should be used.
- The label is filled on the dispensing envelope or on a separate label which has to be stuck on a bottle. The label should have at least the following information:
 - Patient's First and Last Name
 - Patient's Age
 - Generic Name of the Item
 - Strength
 - Form
 - Number of Units Issued
 - Expiry Date
 - Date Dispensed



- Dosage (when, how much, for how long and how the drug should be taken, e.g. take one tablet with food every morning for five days)
- Before closing the container, the container's details are checked against the prescription.
- The necessary information is recorded in the dispensing ledger.
- If there are more drugs, the same procedure is repeated for all the items prescribed.
- Once all the items have been counted and packed, dispense one item at a time to the patient (or the parent if it is a child) and explain the correct dosage (e.g. take one tablet with food every morning for five days).
- The dispenser must ensure that the patient or his/her parent understands correctly how to take the items.
- If the drug has to be mixed or prepared in its final form at the patient's home a demonstration can be done.
- It is important to emphasise the need of taking a full course, not to stop when he/she feels better.
- Lastly, the patient should be advised to keep the items in a safe place at home and out of reach of children.

WHEN DISPENSING, ONE SHOULD TAKE THE REQUIRED TIME TO ENSURE PATIENT COMPLIANCE BY TEACHING THE PATIENT HOW TO TAKE THE MEDICATION, AND CHECK THAT HE/SHE UNDERSTANDS THE IMPORTANCE OF TAKING THE FULL COURSE.



DISPOSAL OF EXPIRED, DAMAGED OR OBSOLETE ITEMS





HOW TO DEAL WITH EXPIRED, OBSOLETE OR DAMAGED ITEMS

Note

VERY OFTEN THE CLINIC STAFF ASK WHETHER EXPIRED DRUGS CAN BE USED. THERE IS ONLY ONE ANSWER:
NEVER USE EXPIRED OR DAMAGED PHARMACEUTICAL PRODUCTS

Expired goods should not be accepted from the supplier, they must be sent back immediately. One way or another the health facility is paying for these items. Money should not be spent on these items.

However, sometimes having expired items is unavoidable (when items are not used regularly, or if they were overstocked and were not redistributed to another health facility, etc.).

Any expired, damaged or obsolete items should be removed immediately from the storage area and secured in a clearly labelled container or box with the label "WARNING: DO NOT USE - ITEMS TO BE DESTROYED". This box should be stored in a different room, away from any regular stock.

If feasible this box should be returned to the provider (hospital or pharmaceutical depot). If not the items have to be destroyed at the facility.

Disposal methods are discussed in the next paragraph. Regardless of the method, the destruction of pharmaceutical wastes should be done by a team under supervision and not by an individual. The procedure should be documented in a dedicated ledger. The following information should be recorded:

- Date, time and place of disposal
- Disposal method
- List of the items to be disposed of and reason(s)
- Estimated value of the items to be disposed of
- Composition of the team
- Name and signature of team leader and one witness.



DI SPOSAL METHODS

The following has been extracted from the Interagency Guidelines published by the World Health Organisation (WHO): "Guidelines for Safe Disposal of Unwanted Pharmaceuticals In and After Emergencies".

In general, expired pharmaceuticals do not represent a serious threat to public health or to the environment. Improper disposal may be hazardous if it leads to contamination of water supplies or local resources used by nearby communities or wildlife. Expired drugs may fall into the hands of scavengers and children if a landfill is insecure. Most pharmaceuticals past their expiry date become less efficacious and a few may develop a different adverse drug reaction profile.

Many methods exist to dispose of pharmaceuticals. In the following paragraphs we look at the methods that should (or should not) be used at the facility level.

- Open uncontrolled non-engineered dump
A non-engineered dump is probably the most common land disposal method. Untreated waste disposal into an uncontrolled, non-engineered open dump does not protect the local environment and should not be used unless the products are immobilised. If it is not possible to immobilise the waste pharmaceuticals, this method should be the last resort. The untreated wastes must be covered rapidly with large quantities of municipal waste to prevent scavenging. It should be noted that discarding in open, uncontrolled dumps with insufficient isolation from the aquifer or other watercourses can lead to pollution, with the risk of drinking water contamination in the worst cases.
- Engineered landfill
Such a landfill has some features to protect against loss of chemicals into the aquifer. Direct deposit of pharmaceuticals is second best to discharging immobilised pharmaceuticals into such a landfill.
- Waste immobilisation by encapsulation
Encapsulation involves immobilising the pharmaceuticals in a solid block within a plastic or steel drum. Drums should be cleaned prior to use and should not have contained any hazardous materials previously. They are filled to 75% capacity with solid and semi-solid pharmaceuticals, and the



remaining space is filled by pouring in cement, cement/lime mixture or bituminous mixture. The sealed drums should be placed at the base of the landfill and covered with fresh municipal solid waste.

- Sewer
Some liquid pharmaceuticals, e.g. syrups and intravenous (I V) fluids, can be diluted with water and flushed into sewers in small quantities over a period of time without serious public health or environmental affect. Fast flowing watercourses may likewise be used to flush small quantities of well-diluted liquid pharmaceuticals or antiseptics. If in doubt check with your environmental health officer.
- Burn in open containers
Pharmaceuticals should not be destroyed by burning at low temperatures in open containers, as toxic pollutants may be released into the air. Paper and cardboard packaging may be burnt. Polyvinyl chloride (PVC) plastic, however, must not be burnt. While burning pharmaceutical waste is not advocated as a method of disposal it is recognised that it is not infrequently used. It is strongly recommended that only a very small quantity of waste pharmaceuticals be disposed of in this way.
- Incineration
Waste pharmaceuticals are destroyed in high temperature incinerators. A minimum temperature of 850°C is required. Hospital incinerators can be used for this purpose.

The methods used depend on the nature of the drugs and/or its pharmaceutical forms. These methods are summarised in the following table.



DI SPOSAL METHODS

Category	Disposal Methods	Comments
Solids (e.g. Tablets) Semi-solids (e.g. Creams) Powders (e.g. ORS)	Landfill Waste encapsulation Incineration	
Liquids	Sewer	<i>Antineoplastics not to sewer.</i>
Ampoules	Crushed and diluted fluid to sewer	<i>Antineoplastics not to sewer.</i>
Anti-infective	Waste encapsulation Incineration	<i>Liquid antibiotics may be diluted with water, left to stand for several weeks and discharged to a sewer.</i>
Antineoplastics	Waste encapsulation Incineration	<i>Not to sewer.</i>
Controlled drugs	Waste encapsulation Incineration	<i>Not to landfill unless encapsulated.</i>
Aerosol Canisters	Waste encapsulation Incineration	<i>Not to be burnt: may explode.</i>
Disinfectants	Use To sewer or fast flowing watercourse	<i>Not to sewer unless diluted.</i>
PVC Plastic	Landfill	<i>Not for burning in open containers.</i>
Paper, cardboard	Recycle, burn, landfill	





APPENDIX A

PROVINCIAL FINANCIAL REGULATIONS CHAPTER N





CHAPTER N

N STORES, EQUIPMENT INCLUDING LABOUR-SAVING DEVICES, LIVESTOCK, STANDARD STOCK AND RENTAL EQUIPMENT

N1 DEFINITIONS

In this chapter, unless the context indicates otherwise:

- 34. **“accounting”** means the recording of all receipts and issues and the continued recording thereof as approved by the Treasury; (xxv)
- 35. **“A-class accounting”** means accounting in respect of non-expendable stores by the updating of a ledger in which all transactions in respect of the items concerned are recorded, as well as the updating of distribution and inventory records for the control of such items after issuing until disposal thereof; (i)
- 36. **“acquittance”** means the acknowledgement by the recipient of receipt of issued stores or services containing his signature, receipt voucher number and date; (xii)
- 37. **“chief user”** means the head of an organisational unit within a department or directorate who receives stores for utilisation and who exercises physical and financial control over all requisitions for stores and services before they are submitted to accounting for issuing; (xxiv)
- 38. **“contractors”** means suppliers outside the Government who supply goods or services to consumers in accordance with contract or tender conditions; (xi)
- 39. **“departmental head of provisioning administration”** means the official who has been delegated to exercise overall control of the logistic/provisioning administration support function of a department; (v)
- 40. **“disposal”** means the process of deciding about the doing away with or the cannibalising of an item which is no longer needed in Government context, and which is administered in terms of the disposal policy; (iii)
- 41. **“E-class accounting”** means accounting in respect of those stocks approved by the Treasury as consumable on an approved record (tally card) until they are issued in order to implement meaningful supplementation and stock-keeping of an item; (vii)
- 42. **“equipment”** means all class A accountable stores which are issued for use or which are in use; (xxii)
- 43. **“Expendable stores”** means relatively cheap items of which the administration costs of recording after issuing are not cost effective or of which some lose their identity in the process of utilisation, and which are approved by the Treasury as class E accountable; (xxiii)
- (xi) **“head office”** means the head office of the department concerned; (ix)
- (xii) **“issue”** means the physical act of delivering items; (xx)
- (xiii) **“issue voucher”** means a treasury-approved voucher on which all issues are recorded; (xxi)
- (xiv) **“ledger”** means a Treasury approved form on which all transactions with regard to class A accountable stores are recorded; (viii)
- (xv) **“obsolete items”** means stores or equipment which can no longer be used within the Government owing to obsolescence, excluding spoilt items; (xxvii)
- (xvi) **“perishables”** means items which have a limited shelf life because they may spoil, decay or become useless for the purpose for which they were purchased; (ii)
- (xvii) **“receipts”** means all stores, services and livestock received, irrespective of the means by which they are purchased, transferred, produced, manufactured, bred, donated or acquired; (xv)



- (xviii) **“receipt voucher”** means a treasury-approved voucher which is completed to record receipts; (xvi)
- (xix) **“redundant items”** means serviceable stock or equipment which is no longer required by the consumer but which can still possibly be utilised for the Government or in any other way; (xvii)
- (xx) **“repairable items”** means items which can be repaired economically and which are serviceable after repair; (x)
- (xxi) **“representative period”** means the most recent two or three successive financial years; (xxvi)
- (xxii) **“serviceable items”** means those items still suitable for the purpose for which they were purchased; (vi)
- (xxiii) **“store or stores depot”** means place where logistical administration is practised with the provisioning of stores and services as primary purpose; (xiii)
- (Xxiv) **“stores”** means all movable State property which is kept in stock for issuing; (xxviii)
- (xxv) **“tally card”** means a Treasury approved form on which all transactions with regard to class E accountable stores and services are recorded; (xix)
- (xxvi) **“unserviceable items”** means those items which, owing to normal wear and tear, have become obsolete and are no longer suitable for the purpose for which they were originally obtained; (xiv)
- (xxvii) **“Voucher file”** means the record in which specified information is registered and in which the relevant registered documents are filed; (iv)
- (xxviii) **“warehouse”** means a place where stores are kept; (xviii)

N2 THE ANALYTICAL TECHNIQUE FOR PROVISIONING

A technique known as the “Analytical Technique for Provisioning” (defined in the Stores Administration Manual), which is intended for the primary determination of which stores items and which quantity thereof should be kept on hand, shall apply in respect of all stores items.

N3 REQUISITIONING

- N3.1 When the need arises for stores or services, the applicant shall request the stores or services from the issuing body or supplier by means of a requisition on a form approved by the Treasury. Each such request shall be authorised.
- N3.2 The person authorising the request shall satisfy himself that a real need exists and that sufficient funds are available for the stores or services concerned before any request is authorised.

N4 PURCHASES

- N4.1 Subject to anything to the contrary contained in any law, purchases shall be in accordance with the State Tender Board Act, 1968 (Act No. 86 of 1968), the Armaments Development and Production Act, 1968 (Act No. 57 of 1968), the State Tender Board regulations and instructions, the Armaments Corporation directions (where applicable) and the Treasury Instructions or other directives issued by the Treasury from time to time.
- N4.2 Quantities to be obtained shall be those stipulated in T.1. N2.
- N4.3 Persons authorising the placing of orders and the payment of accounts shall satisfy themselves that a need for the stores or services exists, that the expenditure is justified and that funds are available.
- N4.4 Procurement in respect of stationery and printing requirements may be undertaken by any institution/organisation, bearing in mind the prices against which such goods/services are supplied by the Government Printer, and provided that the total procurement cost is to the best advantage of the State.



Reproduction of standard forms which are listed in the standard stationery catalogue of, and are normally supplied by the Government Printer, is not permitted unless written authority for such reproduction is obtained from the Government Printer, by the Head Office or the authorised person of a department.

- N4.5 In order to facilitate investigation and to promote economical purchases, requisitions for equipment referred to in Chapter E of the Public Service Staff Code shall as far as possible be summarised on a departmental or regional basis according to type of machine or equipment. When the need exists to purchase several machines of the same kind, the department shall summarise its requirements in one application with detailed individual motivation.
- N4.6 The utilisation of computer installations for the testing or development of projects or systems by suppliers or persons, and the loan of equipment.
- N4.6.1 No supplier of computer hardware or software, or any other person may, without the knowledge and consent of the relevant head of department, be allowed access to any computer installation which is hired or owned by the State, for the purposes of developing or testing computerisation projects or systems, or installation of any additional apparatus for testing purposes, irrespective of whether such services are offered free of charge.
- N4.6.2 When circumstances require that equipment, software or systems must be loaned from a supplier, prior State Tender Board approval is to be obtained in respect of the terms and conditions of such loan.

N5 RECEIPTS

- N5.1 Deliveries shall be carefully examined before any delivery note is signed. Any evidence of damage or short delivery shall be investigated immediately and particulars shall be endorsed on the delivery note.
- N5.2 Stores or services shall be brought to charge without delay and steps shall be taken immediately to put in claims in respect of a defect in quality and quantity.
- N5.3 The head of a unit or institution shall be responsible for the accounting, custody and care of all stores or equipment under his control.
- N5.4 Repairable items shall be taken on charge only after they have been repaired.
- N5.5 Where stores or services are not supplied directly to a store, the person receiving the items or service shall forthwith furnish the storekeeper with a receipt voucher in regard to the quality, quantity and condition of such items or service. As far as practically possible the person acknowledging receipt shall not be the person who signed the order form.

N6 MARKING OF STATE PROPERTY

- N6.1 All stores and equipment which are capable of being marked and which have not already been suitably Marked, shall be marked with the State ownership mark:

R
SA

- N6.2 All livestock, except registered pedigree stock and horses which do not bear a mark of State ownership, shall be branded in terms of the Livestock Brands Act, 1962 (Act No. 87 of 1962), to denote State ownership. Pedigree stock and horses shall be marked in accordance with applicable requirements.

- N6.3 Upon disposal, otherwise than by issue for State use -

the State mark on stores and equipment shall be cancelled with a cross ("X") to show that State ownership has ceased; and the brand on livestock shall be dealt with in terms of the Livestock Brands Act, 1962 (Act No. 87 of 1962).



N7 RECORD-KEEPING

- N7.1 Ledgers or tally cards in respect of stores shall be kept as approved by the Treasury.
- N7.2 Vouchers in support of entries shall be properly numbered and filed in a voucher file in numerical order starting with one for each financial year. In the case of a computerised system the numbering may stretch over more than one financial year. Voucher series for different receiving or issuing bodies shall be kept up to date.
- N7.3 Records of all livestock shall be kept as approved by the Treasury.
- N7.4 Records in respect of equipment which is issued on a distribution basis shall be kept up to date as approved by the Treasury. Equipment registers or inventories, excluding personal equipment registers, shall be numbered consecutively per chief user. For purposes of control, an up to date numerical record shall be kept of all equipment registers or inventories in use. Inventory controllers and chief users are to be appointed in writing, by the departmental head of provisioning administration.
- N7.5 In cases where stores and livestock are produced, manufactured or bred, records of such commodities shall be kept locally for control purposes.
- N7.6 Erasures shall not be permitted in any prescribed records. In all stores accounting systems approved by Treasury, errors may only be corrected in accordance with the prescribed method.
- N7.7 At the end of each financial year ledger and tally cards shall be closed off.
- N7.8 Balances on inventory registers shall be carried forward to new inventory registers when necessary.
- N7.9 No open lines shall be left between entries on an issue or receipt voucher and a ledger or tally card. In cases where only part of such voucher is used, the unused part shall be crossed out diagonally.
- N7.10 All stores accounting systems in the Public Service and amendments thereto, either by hand or by computer, are subject to the prior approval of the Treasury.

N8 STORAGE, CUSTODY AND CARE

- N8.1 Stores shall be suitably stored and arranged in a manner which will facilitate handling and checking. There shall be cross references between the shelf or section where the stores are kept and the ledger or tally card concerned.
- N8.2 Precautions shall be taken for the prevention of damage of, or deterioration in the condition of stores and equipment. A person who has been designated in writing and who is responsible for the custody and care of stores and equipment shall ensure that in his absence buildings, premises and containers which contain such items are according to the circumstances, effectively locked or securely stored.
- N8.3 No unauthorised person shall obtain entry to premises, buildings or containers where stores are kept, unless he is accompanied by the responsible official.
- N8.4 A person in charge of valuable items shall take steps to ensure the safe custody thereof and shall take precautions against loss or theft. If the value of valuable items is determined by mass, the mass shall be measured and recorded.
- N8.5 Stores of an inflammable or dangerous nature shall be stored and handled in such a manner that persons or property are not endangered and, if stored in the area of jurisdiction of a local authority, this shall be done in accordance with the requirements of such local authority.
- N8.6 Fire extinguishing equipment shall be available in each store where equipment or stores are kept. Such apparatus shall be serviced regularly and the date of service indicated thereon. No person shall smoke in a warehouse. Notices to this effect shall be affixed in such warehouses. The stacking of stores shall be in accordance with applicable fire prevention regulations.



N8.7 Complying with State Tender Board contracts and requirements.

- N8.7.1 Contracts by the State Tender Board for the maintenance and servicing of equipment and machinery referred to in PSPC E.1.4.4 and E.11.1.8 shall be strictly adhered to.
- N8.7.2 Additional accessories for a machine, irrespective of whether they are patented or not, shall *mutatis mutandis* be dealt with as prescribed by in PSPC E.1.4.4.

N8.8 Obtaining of quotations

Before authorisation is given for repairs, a quotation shall be obtained from the nearest agent or dealer with the observance of any contract terms which may exist with regard to repairs. If any doubt exists as to whether repairs will be economical, the agent or dealer shall be requested to make recommendations in this respect. Departments shall consider the costs of repair in proportion to all previous repair costs, the condition and value of the furniture/equipment, including equipment referred to in PSPC, Chapter E, the period in use and the expected additional useful life after repair.

N9 STOCKTAKING AND BOARD OF SURVEY

- N9.1 Stores, equipment and livestock shall be subject to stocktaking at least once in every financial year, unless an application for exemption has been submitted to the Treasury for approval, no later than 15 January of the relevant financial year.
- N9.2 Where the quantity of equipment or stores is too large to allow a complete check on a single occasion, stocktaking may be carried out on a continuous basis. A continuous programme coupled with time scales, shall be compiled before the beginning of a financial year and approved by the head of the office.
- N9.3 An accounting officer shall designate in writing one or more competent persons, but not the person directly in charge of the stores, equipment or livestock concerned, to take stock and to report his or their findings. The person in charge of the stores, equipment or livestock concerned shall assist the said person or persons with the stocktaking. If large discrepancies or irregularities are revealed a board of inquiry shall be appointed.
- N9.4 An accounting officer may appoint in writing the same persons as those designated in T.1. N9.3, or others, but a least two competent persons, to act as a board of inquiry and to report to the accounting officer on -
- surpluses or deficiencies in quantities as well as in values or estimated values;
 - particulars of redundant, obsolete or unserviceable movable State property;
 - justification for the quantity and condition of the movable State property, having regards to the activities of the section or division concerned;
 - the possibility that deficiencies, damage, unserviceableness, redundancy or obsolescence in regard to the State property in question may have been caused by default, negligence or misuse by any person;
 - the possible disposal of State property;
 - the possible destruction of State property which has no sales value;
 - the suitability of stores, equipment and livestock for official or functional purposes as regards both quality and quantity;
 - the general condition of stores, equipment and livestock;
 - the causes which may possibly have led to an unsatisfactory state of affairs; and
 - any other matters relating to stock-taking which should receive attention.
- N9.5 In all cases where the same persons have simultaneously carried out a stock-taking and an investigation as a board of inquiry, separate reports may be submitted simultaneously.



N9.6 Surpluses and deficiencies shall, as soon as they have been confirmed, be taken on charge and particulars thereof shall be transferred immediately to a suspense register which shall be finalised only upon receipt of Treasury approval or any other delegated approval. Such discrepancies shall be reflected in the stocktaking reports.

N9.7 A register in which the result of each stock-taking is recorded, shall be kept in each head office in all centres where stores, equipment and livestock are held.

N10 ISSUES, TRANSFERS AND SALES

N10.1 Issues from a store shall be made only on production of an authorised requisition.

N10.2 For each issue an issue voucher shall be completed and the recipient shall acknowledge receipt.

N10.3 All issues shall be written off from ledgers or tally cards.

N10.4 Subject to anything to the contrary, Treasury approval shall be obtained for the sale of store equipment or livestock, and such sales shall take place in accordance with the State Tender Board Act, 1968 (Act No. 86 of 1968) and the State Tender Board regulations and instructions.

N10.5 Where approval has been granted for the sale of stores, equipment and livestock in any manner other than that stipulated in T.I. N10.4, the prices shall, where applicable, include at least the cost referred to in T.I. S1.2.

N10.6 Stores and livestock issued by one department to another shall be supplied at book value or at price approved by the Treasury. The amount recovered shall be dealt with in accordance with the Revenue instructions concerned.

N10.7 Subject to anything to the contrary contained in any law, the proceeds of all sales shall be paid into Revenue. In the case of public auctions, the auctioneer's commission and advertising costs shall be deducted from the proceeds and only the nett amount shall be paid into Revenue.

N10.8 In cases where, with Treasury approval, stores or equipment are traded in for other stores or equipment, the order shall be placed for the net amount and paid as a charge to the vote, and an amount equal to the trade-in value shall be paid into Revenue as a charge against the vote.

N11 HANDING AND TAKING OVER

N11.1 Where a change of personnel in direct control of stores, equipment or livestock takes place, a handing over certificate shall be completed and a copy retained for record purposes. If surplus or deficiencies are found, the certificates shall be dealt with as stocktaking reports and, unless otherwise stipulated, submitted to the Treasury every quarter in triplicate for approval.

N11.2 If for any reason the person from whom the stores, equipment and livestock are being taken over, is not available, an impartial person shall be nominated in writing by the accounting officer to assist the person taking over, with the checking of the stores, equipment and livestock and the certifying of any discrepancies.

N11.3 In case of failure to comply with the requirements of a handing over certificate, the person taking over shall be liable for any shortages, unless it can be established that the shortages existed prior to taking over.

N12 DISPOSAL OF REDUNDANT, OBSOLETE AND UNSERVICEABLE STORES, EQUIPMENT AND LIVESTOCK

Stores, equipment or livestock which are redundant, obsolete and unserviceable shall be disposed of as soon as possible.



N13 ANNUAL STATEMENTS

Accounting officers in control of stores shall at the close of each financial year, render to the Treasury a statement showing the approximate total monetary value of:

- 1.1 **Stores on hand -**
i.e. the monetary value of stores as at the end of the relevant financial year, calculated at book value:
- (B) **equipment on hand: (A-class accountable items) -**
i.e. the monetary value of equipment in use as at the end of the relevant financial year, calculated according to the book value (the average unit price) of similar types/items according to the ledger.

N14 UNAUTHORISED USE AND TRANSACTIONS

- N14.1 Subject to anything to the contrary contained in any law, no stores, equipment or livestock shall be donated, sold, lent out, hired out, traded in, destroyed or transferred from one department to another without prior Treasury approval unless such transfer takes place at book value.
- N14.2 During the requisitioning, consideration, acceptance or allocation of tenders/quotations or any offer no person employed by the State or any person who acts on behalf of the State may exercise or use his discretion, official powers or position in such a manner as to obtain for himself or for any other person or legal person an unlawful or unauthorised advantage or an advantage that serves to unlawfully prejudice the interests of the State or any other person or legal person.
- N14.3 Donations of movable stores to the State shall not be accepted without Treasury approval unless the provisions of T.I. X1.2.1 are complied with.
- N14.4 Stores shall be kept only in an official warehouse, provided that the Treasury can approve alternative storage if it is in the interests of the State.
- N14.5 Stores or equipment shall be used only for official purposes.
- N14.6 No private property may be stored in State warehouses.

N15 CONTAINERS

- N15.1 All containers on which a deposit has been paid or which are returnable in terms of contract shall be duly accounted for on tally cards according to quantity and value. Empty containers shall be returned to the suppliers as soon as possible.
- N15.2 Containers of value which are not returnable shall be accounted for according to mass or quantity and thus be disposed of.

N16 SUPPLEMENTARY INSTRUCTIONS

An accounting officer may issue procedure instructions supplementary to the Treasury Instructions in regard to the administration of stores, equipment or livestock. Such instructions and amendments thereto shall be subject to prior approval by the Treasury.

N17 GENERAL

- N17.1 An accounting officer shall, from time to time, ensure that the procedure instructions concerning the authorisation of requisitions by the responsible persons are satisfactory and that they are conscientiously complied with



N17.2 An accounting officer shall submit the categories of stores which he wants to treat as expendable together with his suggestions for exercising control over such expendable stores at the place of consumption, to the Treasury for approval.

N17.3 An accounting officer shall, from time to time, satisfy himself that the existing procedures for control over stores, equipment and livestock are adequate.

N17.4 Any losses of and damage to stores, equipment and livestock excluding discrepancies at stock-takings or losses resulting from normal handling or reasonable wear and tear, shall be dealt with in accordance with T.I. Chapter W. Repairs shall not be postponed until the amount of a loss or damage has been recovered.

N18 STANDARD STOCK ACCOUNT

N18.1 A standard stock account shall be operated only with Treasury approval and stock control shall be carried out as set out in this chapter.

N18.2 Financial accounting shall be done in accordance with Treasury Instructions.

N19 RENTAL EQUIPMENT ACCOUNT

N19.1 A rental equipment account may be operated only with Treasury approval and stock control shall be carried out as set out in this chapter.

N19.2 Financial accounting shall be done in accordance with Treasury Instructions.

N20 STOCK TRADE ACCOUNT

N20.1 A stock trade account may be operated only with Treasury approval and stock control shall be carried out as set out in this chapter.

N20.2 Financial accounting shall be done in accordance with Treasury Instructions.

N21 LIBRARIES

N21.1 In all departments, sections, offices or institutions where books and other library material are received, stored and made available for reference purposes, such books or library material constitute a library.

N21.2 Each library is to be placed under the care of a competent person who will be responsible for the organisation and administration thereof, in accordance with the Treasury instructions and other instructions or guidelines issued by:

in the case of public libraries under the control of the provincial library services, the Director: Library Services of the relevant province; or
in the case of libraries other than that referred to in paragraph (a), the Head: Meta Information, of the Department of Arts, Culture, Science and Technology.

N21.3 The abovementioned instructions or guidelines and revisions thereof, must be approved by the Treasury prior to being issued.

N22 FINANCIAL ADMINISTRATION SYSTEMS

N22.1 Notwithstanding the provisions of Chapter E of the Public Service Personnel Code, all financial administration systems are subject to formal Treasury approval, and the instructions contained in T.I. N22.2 up to and including N22.4 are also to be complied with.



- N22.2 The Treasury's approval in principle is necessary before conducting a preliminary investigation into the establishment of a financial administration system.
- N22.3 The preliminary investigation report, functional specifications and requirements in respect of programme packages for financial administration systems, are to be submitted to the Treasury in duplicate, for approval before the matter is taken further, or a system implemented.
- N22.4 After Treasury approval has been obtained in terms of T.I. N22.3, all envisaged amendments to functional specifications are to be submitted to the Treasury, in duplicate, for approval.



APPENDIX B

FORMULAE & FORMS





AVERAGE MONTHLY CONSUMPTION

$$\begin{aligned} & \text{TOTAL USED FOR PERIOD "A" (Issue Units)} \\ = & \text{-----} \\ & \text{PERIOD "A" (Months) - Nb. OF MONTHS OUT} \\ & \text{OF STOCK (Months)} \end{aligned}$$



$$\begin{aligned} & \text{STOCK ON HAND (Issue Units)} \\ \text{STOCK LEVEL} = & \text{-----} \\ & \text{AVERAGE MONTHLY} \\ & \text{CONSUMPTION (Issue Units)} \end{aligned}$$



MAXIMUM STOCK LEVEL

$$= \text{AVG X MAXIMUM STOCK FACTOR}$$



 QUANTITY TO ORDER

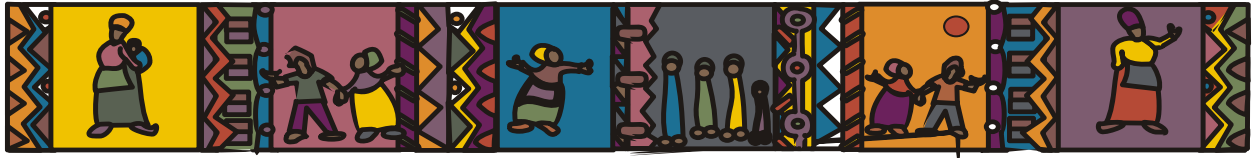
= AVG X REORDER FACTOR - STOCK BALANCE

 WHEN TO ORDER

IF STOCK HAND \geq MAXIMUM STOCK LEVEL
DO NOT ORDER

ELSE

CONSIDER PLACING AN ORDER USING
QUANTITY TO ORDER FORMULA



MAXIMUM STOCK FACTOR

MAXIMUM STOCK FACTOR TABLE				
ORDER FREQUENCY	LEAD TIME			
	1 Week	2 Weeks	4 Weeks	6 Weeks
Once a week	0.5	1		
Every 2 weeks	1	1	2	
Once a month	1.5	2	3	4
Every 6 weeks	2	3	4	5
Every 2 months	3	4	5	6
Every 3 months	4	5	6	7



MAXIMUM STOCK LEVEL

= AVG X MAXIMUM STOCK FACTOR



REORDER FACTOR TABLE

REORDER FACTOR TABLE				
ORDER FREQUENCY	LEAD TIME			
	1 Week	2 Weeks	4 Weeks	6 Weeks
Once a week	0.75	1.5		
Every 2 weeks	1.25	1.5	3	
Once a month	1.75	2.5	4	5.5
Every 6 weeks	2.25	3.5	5	6.5
Every 2 months	3.25	4.5	6	7.5
Every 3 months	4.25	5.5	8	9.5

QUANTITY TO ORDER

= AVG X REORDER FACTOR - STOCK BALANCE



MAXIMUM STOCK & REORDER FACTOR TABLE

COMBINED MAXIMUM STOCK & REORDER FACTOR TABLE								
ORDER FREQUENCY	LEAD TIME							
	1 Week		2 Weeks		4 Weeks		6 Weeks	
	MAX. STOCK	REORDER	MAX. STOCK	REORDER	MAX. STOCK	REORDER	MAX. STOCK	REORDER
Once a week	0.5	0.75	1	1.5				
Every 2 weeks	1	1.25	1	1.5	2	3		
Once a month	1.5	1.75	2	2.5	3	4	4	5.5
Every 6 weeks	2	2.25	3	3.5	4	5	5	6.5
Every 2 months	3	3.25	4	4.5	5	6	6	7.5
Every 3 months	4	4.25	5	5.5	6	8	7	9.5



PROVINCE OF THE EASTERN CAPE: ESSENTIAL DRUGS REQUISITION LIST (PHC)

1053

DEMANDER: _____

REQUISITION NO: _____

DEMANDER NO: _____

NB: Please note unit of issue!

Unit

On hand

Request

Approved

Issued

NSN(Um)

ICN(PE)

SECTION 1: ROUTINE CLINIC STOCK (LEVELS 1A and 1B)

Tablets & Capsules

Aluminium hydroxide + Magn trisilicate tab	24					180339400	3724245
Amoxycillin caps 250mg	15					180198245	3702336
Aspirin soluble tab 300 mg	24					189712392	3700526
Chlorpheniramine tab 4mg	100					189710231	3709876
Cotrimoxazole tab 80+400mg	20					180192291	3777240
Erythromycin stearate tab/cap 250mg	20					180342025	3718324
Ferrous sulphate compound tablets 170mg	28					180339438	3720622
Folic acid tab 5mg	28					180155490	3700828
Hydrochlorothiazide tab 25mg	14					180339454	3730022
Hydrochlorothiazide tab 25mg	28					180190405	3730024
Ibuprofen tab 200mg	15					180339460	3731539
Mebendazole tab 100mg	6					180339466	3746704
Paracetamol tab 500mg	10					180155482	3748275
Phenoxymethylpenicillin tab 250mg	20					180293951	3759684
Reserpine tab 0.25mg	14					180353093	3766974
Vitamin B complex tab	84					180155494	3782609

Liquids & Powders: Oral

Amoxycillin suspension 125mg/5mL	75ml					189711605	3802027
Chlorphenamine 1.25mg & Phenylephrine 2.5mg /5ml	50ml					189714748	3812529
Chlorpheniramine syrup 2mg/5ml	50ml					189711414	3809063
Cotrimoxazole suspension 40+200mg/5mL	50ml					189711315	3877051
Erythromycin (est) suspension 125mg/5mL	100ml					189712134	3818144
Ferrous gluconate syrup 250mg/5ml	100ml					180079580	3820151
Glyco Thymol Mouthwash	100ml					189712406	3825442
Multivitamin syrup	100ml					189718266	3883191
Nystatin suspension 100,000 IU/mL	20ml					189712135	3853845
Oral rehydration salt for solution (SAPA)	50x27g					189714667	3015599
Paracetamol syrup 120mg/5mL	50ml					189712404	3858235
Phenoxymethylpenicillin suspension 125mg/5mL	100ml					189703675	3859296
Vitamin B complex syrup	100ml					189755058	3884284

External Preparations: Liquids, Ointments & Creams

Aqueous cream	100g					189711199	3579245
Benzoic Acid 6% / Sal. Acid 3% oint (Whitfield)	25g					189715396	3578992
Benzylbenzoate 25% (25g/100mL)	100ml					189707445	3502878
Calamine lotion BP	100ml					189703365	3846016
Chlorhexidine 0.05% in water	50ml					180254409	3870105
Chlorhexidine 0.5% in Alcohol 70%	500ml					189708944	3809054
Gentian Violet 0.5% Aqueous Soln	0.5%					189712405	3560201
Methylsalicylate Ointment	25g					189711948	3579670
Nystatin topical ointment 100,000 IU/g. 15g	15g					189708000	3549828
Povidone iodine 5% cream	25g					180119662	3563873
Povidone iodine 5% cream	500g					189708213	3583871
Povidone iodine 10% solution	1L					189712302	3861074
Zinc & castor oil ointment	25g					189715429	3510946

Eye, Ear, Nose Drops & Inhalers

Beclometasone inhaler 50 mcg/actuation	Compl					189708018	3804399
Chloramphenicol 1% eye ointment	3.5G					189700731	3509311
Oxymetazoline nosedrops 0.25mg/mL	10ml					189707390	3857646



